



# MESC

OFFICE OF MANUFACTURING AND ENERGY SUPPLY CHAINS

## FINANCIAL ASSISTANCE FUNDING OPPORTUNITY ANNOUNCEMENT



**Department of Energy (DOE)**  
**Office of Manufacturing and Energy Supply Chains (MESC)**

**Bipartisan Infrastructure Law**  
**State Manufacturing Leadership Program (Section 40534)**

**Funding Opportunity Announcement (FOA) Number: DE-FOA-0002969**

**FOA Type: Initial**

**Assistance Listing Number: 81.253**

<b>FOA Issue Date:</b>	03/31/2023
<b>Informational Webinar:</b>	04/06/2023 2:00pm ET
<b>Submission Deadline for Full Applications:</b>	05/30/2023 5:00pm ET
<b>Expected Submission Deadline for Replies to Reviewer Comments:</b>	06/30/2023 5:00pm ET
<b>Expected Date for DOE Selection Notifications:</b>	08/01/2023
<b>Expected Timeframe for Award Negotiations:</b>	Sept – Dec 2023

- To apply to this FOA, applicants must register with and submit application materials through Clean Energy Infrastructure at <https://infrastructure-exchange.energy.gov/>, MESC's online application portal.
- **Unique Entity Identifier (UEI) and System for Award Management (SAM)** - Each applicant (unless the applicant is excepted from those requirements under 2 CFR 25.110) is required to: (1) Be registered in the SAM at <https://www.sam.gov> before submitting its application; (2) provide a valid UEI number in its application; and (3) continue to maintain

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an active SAM registration with current information at all times during which it has an active federal award or an application or plan under consideration by a federal awarding agency. DOE may not make a federal award to an applicant until the applicant has complied with all applicable UEI and SAM requirements and, if an applicant has not fully complied with the requirements by the time DOE is ready to make a federal award, the DOE will determine that the applicant is not qualified to receive a federal award and use that determination as a basis for making a federal award to another applicant.

**NOTE: Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration process as soon as possible. If entities have technical difficulties with the UEI validation or SAM registration process, they should utilize the HELP feature on SAM.gov. SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).**

- Applicants must designate primary and backup points-of-contact in Clean Energy Infrastructure Exchange with whom MESC will communicate to conduct award negotiations. If an application is selected for award negotiations, it is not a commitment to issue an award. It is imperative that the applicant/selectee be responsive during award negotiations and meet negotiation deadlines. Failure to do so may result in cancelation of further award negotiations and rescission of the selection.

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# I. Funding Opportunity Description

## A. Background and Context

The Office of Manufacturing and Energy Supply Chains (MESC) is issuing this Funding Opportunity Announcement (FOA). Awards made under this FOA will be funded, in whole or in part, with funds appropriated by the Infrastructure Investment and Jobs Act,<sup>1</sup> more commonly known as the Bipartisan Infrastructure Law (BIL).

The BIL is a once-in-a-generation investment in infrastructure, designed to modernize and upgrade American infrastructure to enhance the United States' competitiveness, drive the creation of good-paying union jobs, tackle the climate crisis, and ensure stronger access to economic, environmental, and other benefits for disadvantaged communities.<sup>2</sup> The BIL appropriates more than \$62 billion to the Department of Energy (DOE)<sup>3</sup> to invest in American manufacturing and workers; expand access to energy efficiency and clean energy; deliver reliable, clean and affordable power to more Americans; and demonstrate and deploy the technologies of tomorrow through clean energy demonstrations.

As part of and in addition to upgrading and modernizing infrastructure, DOE's BIL investments will support efforts to build a clean and equitable energy economy that achieves a zero-carbon electricity system by 2035, and to put the United States on a path to achieve net-zero emissions economy-wide by no later than 2050<sup>4</sup> to benefit all Americans.

The BIL invests appropriations of \$50 million over Fiscal Years (FYs) 2022 through 2026 to establish the State Manufacturing Leadership Program (the Program), which will support states in accelerating the deployment of smart manufacturing technologies by small- and medium-sized manufacturing firms (SMMs).<sup>5</sup> Through this FOA, the Program will provide

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<sup>1</sup> Infrastructure Investment and Jobs Act, Public Law 117-58 (November 15, 2021). <https://www.congress.gov/bill/117th-congress/house-bill/3684>. This FOA uses the more common name "Bipartisan Infrastructure Law".

<sup>2</sup> Pursuant to Executive Order (E.O.) 14008 and the Office of Management and Budget's Interim Justice40 Implementation Guidance M-21-28 and addendum issued January 27, 2023, DOE will recognize disadvantaged communities as defined and identified by the White House Council on Environmental Quality's Climate and Economic Justice Screening Tool (CEJST), which can be located at <https://screeningtool.geoplatform.gov/>.

<sup>3</sup> U.S. Department of Energy. November 2021. "DOE Fact Sheet: The Bipartisan Infrastructure Deal Will Deliver for American Workers, Families and Usher in the Clean Energy Future." <https://www.energy.gov/articles/doe-fact-sheet-bipartisan-infrastructure-deal-will-deliver-american-workers-families-and-0>.

<sup>4</sup> E.O. 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021.

<sup>5</sup> For purposes of this Program, a small- or medium-sized manufacturing firm (SMM) means manufacturing firms (1) classified in the North American Industry Classification System (NAICS) as any of sectors 31 through 33; (2) with gross annual sales of less than \$100,000,000; (3) with fewer than 500 employees at the plant site; and (4) with annual energy bills totaling more than \$100,000 and less than \$3,500,000. 42 U.S.C. § 18811(6).

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financial assistance in support of State<sup>6</sup> programs to (1) provide assistance to SMMs to implement smart manufacturing<sup>7</sup> technologies and practices and (2) facilitate access to high performance computing (HPC) resources for SMMs.<sup>8</sup>

The rapid development, deployment, and adoption of smart manufacturing technologies is a high priority for increasing economic competitiveness, efficiency, and energy productivity – and decreasing greenhouse gas emissions – in all U.S. manufacturing sectors.<sup>9</sup> Activities supported under this FOA support BIL Section 40534 and the broader government-wide approach to reinvigorating and reinvesting in the American industrial base; catalyzing American leadership and global competitiveness in the clean energy economy; and investing in the American manufacturing workforce.

## **i. Program Purpose**

The digitization of manufacturing is transforming the industrial sector. In recent years, manufacturing firms were largely investing in bringing computers and electronics into their processes to automate processes. While companies could utilize robots to perform processes without human intervention, they required programming and could only execute certain activities. Through smart manufacturing, or “Industry 4.0”, the focus is shifting to interconnectivity, automation, and using real-time data to improve production; facilitating the adoption of advanced industrial robotics, artificial intelligence, and cybersecurity technologies that are critical to resilience and maintaining a competitive edge; and increasing product quality and sustainability by allowing manufacturers to sense and then correct materials anomalies.<sup>10, 11</sup>

This FOA will support States in accelerating the deployment of smart manufacturing and high-performance computing technologies across their small- and medium-sized manufacturing firm base. It seeks to connect SMMs broadly with resources for utilizing smart manufacturing technologies in their facilities, using States as critical partners for providing technical assistance. Smart integrated technologies—such as advanced sensors, data analytics, and process controls—can help manufacturers gain unprecedented real-time control of energy use, productivity, and costs across plant sites.<sup>12</sup> As a result, this Program also contributes to the Administration’s goals of

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<sup>6</sup> “State means any state of the United States, the District of Columbia, the Commonwealth of Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any agency or instrumentality thereof exclusive of local governments.” 2 CFR 200.1.

<sup>7</sup> U.S. Department of Energy, <http://www.energy.gov/eere/amo/articles/smart-manufacturing-transforming-american-manufacturing-information-technology>.

<sup>8</sup> BIL § 40534(d).

<sup>9</sup> U.S. Department of Energy, *National Smart Manufacturing Strategic Plan* (July 2022).

<sup>10</sup> *Ibid.*

<sup>11</sup> National Institutes of Standards and Technology, <https://www.nist.gov/blogs/manufacturing-innovation-blog/cybersecurity-and-industry-40-what-you-need-know>.

<sup>12</sup> U.S. Department of Energy, <https://www.energy.gov/eere/amo/articles/smart-manufacturing-transforming-american-manufacturing-information-technology>.





modernizing the American industrial base and ensuring the emerging net zero economy delivers true economic prosperity to the American people.

DOE seeks responses to this FOA that either create new, or build on existing, technical assistance programming for SMMs specific to smart manufacturing. States should consider all appropriate uses of funding to drive scaled and strategic deployment of smart manufacturing technologies by SMMs. Uses of funding may include, but need not be limited to:

- promoting the benefits of smart manufacturing technologies among SMMs based on national and regional economic development and supply chain priorities;
- connecting SMMs with a diverse coalition of public and private technical assistance providers, such as the Manufacturing USA institutes, the National Laboratories, Industrial Assessment Centers (IACs), NIST Manufacturing Extension Partnerships (MEPs), and institutions of higher education (IHEs);
- partnering with labor unions and other stakeholders to expand and diversify the smart manufacturing talent pool; to develop, promote, and scale adoption of smart manufacturing training; and to promote innovation on SMM shop floors;
- identifying and providing financial assistance to facilitate SMMs' access to and implementation of smart manufacturing and high-performance computing resources and technologies;
- ensuring that the benefits of smart manufacturing adoption by SMMs flow to disadvantaged communities<sup>13</sup> and dislocated workers;
- setting State-level performance metrics, targets, and goals for program participation and desired outcomes; and
- establishing programs that will be self-sustaining in the long run, following a federal award.

In designing programs, States should familiarize themselves with the [National Strategy for Advanced Manufacturing](#),<sup>14</sup> as well as with existing national resources. See Section I. B. below for more information.

This FOA requires the development of a Community Benefits Plan that sets forth the applicant's actionable framework to ensure Federal investments support sustainable community economic development and prosperity through actions such as community and labor engagement, including labor unions, as well as

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<sup>13</sup> Pursuant to Executive Order (EO) 14008, "Tackling the Climate Crisis at Home and Abroad," January 27, 2021, and the Office of Management and Budget's Interim Justice40 Implementation Guidance M-21-28, DOE recognizes DACs as defined and identified by the White House Council of Environmental Quality's Climate and Economic Justice Screening Tool (CEJST), which can be located at <https://screeningtool.geoplatform.gov/>.

<sup>14</sup> Subcommittee on Advanced Manufacturing Committee on Technology, National Science and Technology Council, *National Strategy for Advanced Manufacturing*, October 2022.

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underserved communities and underrepresented groups, including consultation with Tribal Nations,<sup>15</sup> and encouraging worker organizing and collective bargaining,<sup>16, 17, 18</sup>; investing in the American workforce; diversity, equity, inclusion and accessibility; and commitment to the Justice40 Initiative. Guidance on Community Benefits Plans can be found in Section IV.

## ii. Technology Space

### *What is Smart Manufacturing?*

Smart Manufacturing is the use of emerging and advanced technologies to increase the efficiency of the traditional manufacturing process. Smart manufacturing produces fully-integrated, collaborative manufacturing systems that respond in real time to meet changing demands and conditions in the factory, in the supply network, and in customer needs.<sup>19</sup> Rather than each machine and product line operating independently and remotely, smart manufacturing technology can cause machines and operators to communicate with each other—through digitization, automation, and artificial intelligence—helping manufacturers track and anticipate problems, and create efficiencies and optimized processes.

Smart manufacturing technologies span information, automation, monitoring, computation, sensing, modeling, artificial intelligence (AI), analytics, and networking. They can digitally perform functions such as:

- Simulate manufacturing production lines;
- Operate computer-controlled manufacturing equipment;
- Monitor and communicate production line status; and
- Manage and optimize energy productivity and cost throughout production.<sup>20</sup>

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<sup>15</sup> [E.O. 13175](#), November 6, 2000 “Consultation and Coordination with Indian Tribal Governments”, charges all executive departments and agencies with engaging in regular, meaningful, and robust consultation with Tribal officials in the development of Federal policies that have Tribal implications.

<sup>16</sup> [E.O. 13985](#), “Advancing Racial Equity and Support for Underserved Communities Through the Federal Government”, January 20, 2021.

<sup>17</sup> [E.O. 14025](#), “Worker Organizing and Empowerment,” April 26, 2021.

<sup>18</sup> [E.O. 14052](#), “Implementation of the Infrastructure Investment and Jobs Act,” November 18, 2021.

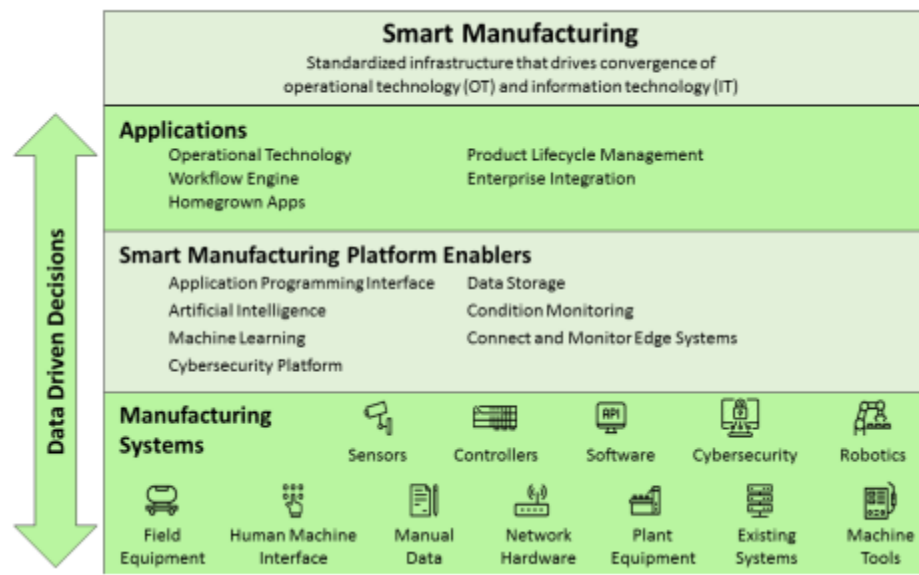
<sup>19</sup> <https://www.nist.gov/programs-projects/product-definitions-smart-manufacturing>.

<sup>20</sup> BIL § 40531(7).

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**Figure 1: Smart Manufacturing Implementation**

Source: U.S. Department of Energy National Smart Manufacturing Strategic Plan (July 2022)

In smart manufacturing, organizations, people, and technology work in synergy. Smart manufacturing is radically impacting the performance of the manufacturing ecosystem through measurable improvements in areas such as speed, agility, innovation, quality, costs/profitability, safety, asset reliability, and energy productivity.<sup>21</sup>

Smart manufacturing technologies play a key role in increasing energy efficiency and performance, including by modeling, simulating, and optimizing energy efficiency and energy performance of buildings and manufacturing plants; and modeling, simulating, and optimizing the design of energy efficient and sustainable products, including through the use of digital prototyping and additive manufacturing to enhance product design.<sup>22</sup> Further, smart manufacturing technologies can connect manufactured products to optimize performance of automated network operations and digitally connect supply chain networks.<sup>23</sup>

With the increase in deployment of smart manufacturing technologies, utilizing data and connectivity also comes an increase in cybersecurity risks. Manufacturing firms must therefore make complimentary investments in this area to secure implementation of their smart manufacturing technologies. National resources such as those discussed in Appendix D can be important partners.

<sup>21</sup> <https://www.cesmii.org/about/what-is-smart-manufacturing/>.

<sup>22</sup> BIL § 40531(7).

<sup>23</sup> BIL § 40531(7).



Leveraging AI in manufacturing, for example, enables manufacturers to make fast, actionable decisions, resulting in improvements such as predictive maintenance, predictive quality, increased yield/throughput, and demand and inventory forecasting. These improvements can lead to reduced downtime of manufacturing lines, increased cost savings, and maximized product quality.<sup>24</sup>

#### *What is High Performance Computing?*

High performance computing is the use of supercomputers, sophisticated models, and/or large data sets to study and solve complex scientific and technological challenges. Manufacturers have long relied on computers for modeling during process and product development and in-plant troubleshooting. Recent increases in computer processing power have enabled dramatically faster and more accurate modeling, simulation, and data analysis.

In manufacturing, HPC is used to develop advanced materials and manufacturing processes. These HPC capabilities can be applied by SMMs to:

- Model and simulate the operation of highly complex processes and advanced technologies;
- Accurately predict the effects from changing design configurations;
- Rapidly analyze huge data sets;
- Gain a deeper understanding of the underlying physical behavior to inform decision-making;
- Lower energy and material use and costs; and
- Improve manufacturing line performance, increase energy efficiency, and cut emissions.<sup>25</sup>

Advanced modeling and simulations through the use of HPC, for example, can replace physical product prototyping with less expensive computer simulations. HPC simulations can offer a faster and more efficient way to iterate and optimize the design of processes and devices. They can be used with confidence to replace the need for costly physical ‘trial-and-error’ development steps. As a result, testing cycles can be accelerated or, in some cases, eliminated.

- Designs can be tested safely, and errors can be corrected before building the first prototype;
- Product ‘use cases’ can be run to predict wear and tear over time; and
- Failure of metal, plastic, and ceramic parts can be predicted and used to schedule preventive maintenance.

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<sup>24</sup> National Institute for Standards and Technology, *Artificial Intelligence in Manufacturing: Real World Success Stories and Lessons Learned* (January 2022).

<sup>25</sup> U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, *High Performance Computing for Manufacturing* (May 2021).

In turn, this can reduce the time to take products to market while simultaneously making quality improvements and ultimately cutting overall manufacturing costs.<sup>26</sup>

#### Technical and economic benefits from HPC in manufacturing

Types of Benefits	Examples
Energy	<ul style="list-style-type: none"><li>• Lower lifecycle energy demand</li><li>• Increased energy efficiency and performance</li></ul>
Materials	<ul style="list-style-type: none"><li>• Reduced material demand</li><li>• Longer lasting materials</li><li>• Lighter-weight materials</li><li>• Reduced use of critical materials in short supply</li><li>• Increased recyclability</li></ul>
Emissions	<ul style="list-style-type: none"><li>• Lower air pollutants</li><li>• Reduced toxic emissions</li></ul>
Waste	<ul style="list-style-type: none"><li>• Fewer rejected parts</li><li>• Less unused materials and byproducts</li></ul>
Costs	<ul style="list-style-type: none"><li>• Lower production costs</li><li>• Reduced technology operating costs</li><li>• Lower input costs of material and energy</li><li>• Increased reliability / Reduced unexpected downtime</li><li>• Better scheduling of preventive maintenance</li></ul>
Competitiveness	<ul style="list-style-type: none"><li>• Innovative designs that differentiate the manufacturer</li><li>• New products that meet customer needs</li><li>• New patents</li></ul>

**Figure 2:** Technical and Economic Benefits from HPC in Manufacturing

Source: U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, *High Performance Computing for Manufacturing* (May 2021)

By working with States to provide access to HPC resources and accelerate scaled adoption of smart manufacturing technologies, this Program will advance DOE's strategic goals of (i) deploying best-in-class technologies, tools, and practices to improve energy efficiency, increase productivity, mitigate cybersecurity risk, enhance resilience, and reduce waste, emissions, and pollution at SMM facilities; (ii) leveraging resources from across the Federal Government, as well as from State, Tribal, local, private sector and nongovernmental entities, to enhance the competitiveness of the manufacturing base; and (iii) equitably developing the clean energy workforce of the future. States are invited in this FOA to submit applications that expand upon existing or create new State-level programs to advance these objectives.

<sup>26</sup> *Ibid.*



### iii. Strategic Goals

DOE seeks to accelerate adoption of smart manufacturing and high-performance computing technologies among SMMs by working with States to facilitate opportunities. This collaboration opportunity will not only accelerate innovation and competitiveness, but it also has the potential to reduce energy and carbon intensity—benefiting the manufacturing firm, state, nation, and overall global climate goals. The Program aspires to achieve the following four goals:

#### **a. Increasing Competitiveness of the American Manufacturing Base**

This Program seeks to accelerate adoption of smart manufacturing technologies and increase access to HPC resources broadly across the industrial base. SMMs account for approximately 99 percent of U.S. manufacturing enterprises, contributing more than \$1 trillion in gross revenue, and providing more than five million U.S. jobs.<sup>27</sup> But domestic SMMs often fall behind larger firms in their technology investments. The result is that the largest manufacturers' labor productivity is 58 percent higher than their middle-sized counterparts; a significant part of this gap is explained by small firms' lack of technology adoption.<sup>28</sup>

In order to compete globally, the United States must rapidly develop and implement innovative manufacturing technologies. Capitalizing on Federal investments in research, development, and deployment of these technologies, new public-private partnerships—such as those to be established through this Program—can match industry-relevant tools, technology, and expertise and expand regional innovation ecosystems, driving economic growth.<sup>29</sup>

Through this Program, DOE strives to make adoption of smart manufacturing technologies far more accessible across the country's manufacturing base by working with States to remove cost and complexity barriers. In doing so, this Program supports the Administration's goals of catalyzing American leadership and global competitiveness in the clean energy economy.

#### **b. Reducing Industrial Emissions for a Net Zero Economy**

The U.S. manufacturing sector accounts for over 70% of total industrial energy consumption.<sup>30</sup> Accelerating the adoption of smart manufacturing technologies in energy intensive SMMs can decrease this footprint by moving technologies that

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<sup>27</sup> U.S. Small Business Administration Manufacturing Office, <https://www.sba.gov/about-sba/organization/sba-initiatives/support-manufacturing-businesses>.

<sup>28</sup> National Bureau of Economic Research, *Automation and the Workforce: A Firm-Level View from the 2019 Annual Business Survey* (February 2022).

<sup>29</sup> National Science and Technology Council, *National Strategy for Advanced Manufacturing* (October 2022).

<sup>30</sup> U.S. Department of Energy Advanced Manufacturing and Industrial Decarbonization Offices, <https://www.energy.gov/eere/amo/articles/analysis-finds-decrease-us-manufacturing-energy-consumption>.

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can improve both manufacturing capability and efficiency into the mainstream. Smart manufacturing technologies identify opportunities for optimizing energy management, energy productivity, and energy efficiency. Employing these technologies allows SMMs to monitor energy use of the facility and equipment, use predictive modeling to test out alternative processes, and make improvements that increase performance and productivity—all while creating energy savings.

DOE will provide funding to States that helps SMMs identify opportunities to drive efficiencies that will reduce energy costs while driving down industrial emissions. For example, using smart manufacturing technologies, SMMs can deploy sensors, design and test alternate production processes, or conduct predictive maintenance to alert to maintenance needs. These uses will help SMMs improve facilities and cut down on energy uses and costs, and will also contribute to local, state, and national goals of advancing toward overall emissions reductions targets.

**c. Equitably Developing the American Industrial Workforce**

The majority of SMMs currently do not employ smart manufacturing technologies for a handful of reasons, most commonly because of the resources—financial, staffing, training—needed to do so. The limited deployment of these technologies in turn means that skills associated with utilizing smart manufacturing technologies are similarly concentrated in a small percentage of firms across the United States. This limits the ability to drive increases in the skill-level and knowledge base of the domestic manufacturing workforce, particularly among SMMs.

This Program aims to expand smart manufacturing training for American workers. Funding can help States increase the capacity of existing state, local, and regional workforce development programs. It can also help create new partnerships that utilize workforce development resources from national partners and bring new programs to their State—either to directly train workers or to train the facilitators in existing local workforce development and Labor organizations. Training workers on the use of smart manufacturing technologies, maintenance of systems, and other associated skills will upskill the manufacturing workforce across the country. This increased skillset will be brought into new locations and facilities that could include disadvantaged communities and among underserved and underrepresented workers. In turn this strengthens the domestic manufacturing base and American competitiveness.

**d. Advancing a Robust and Integrated Support Ecosystem for SMMs**

DOE seeks applications that will further enhance and integrate a robust ecosystem of support for American SMMs. The Program seeks to drive coordination and communication across the Federal Government and with local, state, and national technical resources. MESC, for example, is coordinating internally with DOE's

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Advanced Materials and Manufacturing Technologies Office (AMMTO) and Industrial Efficiency and Decarbonization Office (IEDO) and other offices; externally with the Department of Commerce and the National Institutes of Standards and Technology (NIST); and with State governments to maximize connectivity to resources and tools for planning and implementing tools for SMMs. It will also bolster existing resources by helping foster opportunities for utilization of existing programs and assistance, such as the Manufacturing USA network, Manufacturing Extension Partnerships (MEPs), Industrial Assessment Centers (IACs), DOE's National Laboratories, and Institutions of Higher Education (IHEs).

This coordination among DOE, Federal Government partners, and national resources will foster a more robust and whole-of-government approach to the deployment of smart manufacturing technologies. This will ensure that firms from across the country have access to resources where they are—making it less costly and less time consuming on SMMs. It also ensures that the funding received through this Program does not have a one-time and short-term impact, but rather sets the foundation for enduring partnerships and the continuation of these relationships between States, SMMs, and resources. See Appendix D for some examples of available types of resources and partners that States could consider maximizing the impact of their projects.

## **B. Topic Areas**

All work for projects selected under this FOA must be performed in the United States. See Section IV.I.iii. and Appendix B.

### **Topic Area 1: “Facilitating the Deployment of Smart Manufacturing Technologies by SMMs”**

Consistent with BIL 40534, the object of the single Topic Area under this FOA is to **support State programs that (1) provide assistance to SMMs to implement smart manufacturing technologies and practices and (2) facilitate access to high-performance computing (HPC) resources for SMMs**. DOE seeks applications that describe multiple types of assistance for SMMs.

In particular, through this FOA, DOE strongly encourages States to consider leveraging existing national, state, regional, and local resources in the public and private sector that assist SMMs in the deployment of smart manufacturing technologies. These resources may, for example, offer scaled services such as:

- Information regarding the benefits of smart manufacturing technologies;
- Training on how to adopt smart manufacturing technologies;

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- Resources to overcome financing barriers and support adoption and implementation of smart manufacturing resources;
- “Train-the-trainer” resources to expand smart manufacturing training;
- Registered apprenticeship programs to support hands-on smart manufacturing training and/or to support implementation of smart manufacturing technologies;
- Access to high performance computing resources, including cloud based HPC resources;
- Collaboration among SMMs facing similar manufacturing challenges; and
- Essential supportive services, including, for example, cybersecurity services.

Leveraging these resources can help a State expedite delivery and reduce the cost of providing technical assistance to SMMs.

Examples of available resources that support adoption of smart manufacturing technologies across the United States are included in Appendix D. Specific organizations that have expressed interest in participating in this Program as partners can be found on the Teaming Partner List, as further described in the next section.

In applying for assistance under this FOA, applicants should indicate whether they intend to leverage Federal support to increase capacity within an existing program providing smart manufacturing resources to SMMs or whether they intend to create a new State-level program to enhance access and/or scale adoption of smart manufacturing technologies by SMMs. It is expected that States will leverage existing local, regional, statewide, or national resources with demonstrated expertise in smart manufacturing technologies and/or HPC resources to the maximum extent possible to maximize the impact.

#### **i. Teaming Partner List**

DOE is compiling a “Teaming Partner List” to facilitate the formation of new project teams for this FOA. The Teaming Partner List allows organizations who may wish to participate on an application to express their interest to other applicants and to explore potential partnerships.

Updates to the Teaming Partner List will be available in the Clean Energy Infrastructure Exchange website. The Teaming Partner List will be regularly updated to reflect new teaming partners who provide their organization’s information.

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**SUBMISSION INSTRUCTIONS:** Any organization that would like to be included on this list should submit the following information: Organization Name, Contact Name, Contact Address, Contact Email, Contact Phone, Organization Type, Area of Technical Expertise, and a Brief Description of Capabilities. Interested parties complete the Teaming List Form available on the Clean Energy Infrastructure Exchange website at <https://infrastructure-exchange.energy.gov/>, and email the completed form to [FOA2969@netl.doe.gov](mailto:FOA2969@netl.doe.gov), with the subject line “Teaming Partner Information.”

**DISCLAIMER:** By submitting a request to be included on the Teaming Partner List, the requesting organization consents to the publication of the above-referenced information. By facilitating the Teaming Partner List, DOE is not endorsing, sponsoring, or otherwise evaluating the qualifications of the individuals and organizations that are self-identifying themselves for placement on this Teaming Partner List. DOE will not pay for the provision of any information, nor will it compensate any applicants or requesting organizations for the development of such information.

### **C. Applications Specifically Not of Interest**

The following types of applications will be deemed nonresponsive and will not be reviewed or considered (See Section III.D. of the FOA):

- Applications that fall outside the technical parameters specified in Sections I.A. and I.B. of the FOA.
- Applications seeking to fund construction activities such as the expansion or modification of a facility.

### **D. Community Benefits Plan: Job Quality and Equity**

To support the goal of building a clean and equitable energy economy, the BIL-funded projects are expected to (1) support meaningful community and labor engagement; (2) invest in America’s workforce; (3) advance diversity, equity, inclusion, and accessibility; and (4) contribute to the President’s goal that 40% of the overall benefits of certain federal investments flow to disadvantaged communities (the Justice40 Initiative). To ensure these goals are met, applications must include a Community Benefits Plan that describes how the proposed project would incorporate the four objectives stated above.

Applicants are encouraged to submit Community and Labor Partnership Documentation from established labor and community-based organizations that demonstrate the applicant’s ability to achieve the above goals as outlined in the Community Benefits Plan. Within the Community Benefits Plan, the applicant is encouraged to provide specific detail on how to ensure the delivery of measurable community and jobs benefits, ideally through the use of negotiated agreements

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between the applicant and the community, and/or the applicant and labor unions, referred to collectively here as “Workforce and Community Agreements.” These include good neighbor agreements, community workforce agreements, project labor agreements, and other collective bargaining agreements. See Section IV.C.xiv. for the Community Benefits Plan content requirements.

## **E. Authorizing Statutes**

The programmatic authorizing statute is Section 40534 of the Infrastructure Investment and Jobs Act, Public Law 117-58, codified at 42 U.S.C. § 18814.

Awards made under this announcement will fall under the purview of Title 2 of the Code of Federal Regulations (CFR) Part 200 as amended by 2 CFR Part 910.

## **F. Notice of Bipartisan Infrastructure Law-Specific Requirements**

Be advised that special terms and conditions apply to projects funded by the BIL relating to:

- Reporting, tracking, and segregation of incurred costs;
- Reporting on job creation and preservation;
- Publication of information on the Internet;
- Access to records by Inspectors General and the Government Accountability Office;
- Requiring all of the iron, steel, manufactured goods, and construction materials used in the infrastructure activities of applicable projects are produced in the United States;
- Ensuring laborers and mechanics employed by contractors or subcontractors on BIL-funded projects are paid wages equivalent to prevailing wages on similar projects in the area;
- Protecting whistleblowers and requiring prompt referral of evidence of a false claim to an appropriate inspector general; and
- Certification and Registration.

Per BIL section 40534, DOE is required to conduct semiannual award evaluations (1) to determine the impact and effectiveness of programs funded with the financial assistance; and (2) to provide guidance to States on ways to better execute the State programs. Recipients of funding will be required to cooperate with DOE in these evaluations.

Recipients of funding appropriated by the BIL must comply with requirements of all applicable Federal, State, and local laws, regulations, DOE policy and guidance, and instructions in this FOA. Recipients must flow down the requirements to subrecipients to ensure the recipient’s compliance with the requirements.

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## II. Award Information

### A. Award Overview

#### i. Estimated Funding

DOE expects to make a total of approximately \$46,000,000 of federal funding available for new awards under this FOA, subject to the availability of appropriated funds. DOE anticipates making approximately 20-25 awards under this FOA. DOE may issue one, multiple, or no awards. Individual awards may vary between \$1,000,000 and \$2,000,000. Awards are limited to a maximum of \$2,000,000 by statute.

DOE may issue awards in one, multiple, or none of the following topic area:

Topic Area Number	Topic Area Title	Anticipated Number of Awards	Anticipated Minimum Award Size for Any One Individual Award (Fed Share)	Maximum Award Size for Any One Individual Award (Fed Share)	Approximate Total Federal Funding Available for All Awards	Maximum Period of Performance (months)
1	Facilitating The Deployment of Smart Manufacturing Technologies by SMMS	20-25	\$1,000,000	\$2,000,000	\$46,000,000	Up to 36 months

DOE may establish more than one budget period for each award and fund only the initial budget period(s). Funding for all budget periods, including the initial budget period, is not guaranteed.

#### ii. Period of Performance

DOE anticipates making awards that will run from 24 months up to 36 months in length, comprised of one or more budget periods. The project period cannot exceed 36 months and projects cannot be extended per statute. Project continuation will be contingent upon several elements, including satisfactory performance and DOE's Go/No-Go decision.

At the Go/No-Go decision points, MESC will evaluate project performance, project schedule adherence, the extent to which milestone objectives are met, compliance with reporting requirements, and overall contribution to the program goals and objectives. As a result of this evaluation, MESC may, at its discretion, authorize the following actions: (1) continue to fund the project, contingent upon

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the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority; (2) recommend redirection of work under the project; (3) place a hold on federal funding for the project, pending further supporting data or funding; or (4) discontinue funding the project because of insufficient progress, change in strategic direction, or lack of funding.

For a complete list and more information on the Go/No-Go review, see Section VI.B.xii.

**iii. New Applications Only**

DOE will accept only new applications under this FOA. DOE will not consider applications for renewals of existing DOE-funded awards through this FOA.

**B. DOE Funding Agreements**

Through cooperative agreements and other similar agreements, DOE provides financial and other support to projects that have the potential to realize the FOA objectives. DOE does not use such agreements to acquire property or services for the direct benefit or use of the United States government.

**i. Cooperative Agreements**

DOE generally uses cooperative agreements to provide financial and other support to prime recipients.

Through cooperative agreements, DOE provides financial or other support to accomplish a public purpose of support or stimulation authorized by federal statute. Under cooperative agreements, the government and prime recipients share responsibility for the direction of projects.

DOE has substantial involvement in all projects funded via cooperative agreement. See Section VI.B.ix. of the FOA for more information on what substantial involvement may involve.

## **III. Eligibility Information**

To be considered for substantive evaluation, an applicant's submission must meet the criteria set forth below. If the application does not meet these eligibility requirements, it will be considered ineligible and removed from further evaluation.

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## A. Eligible Applicants

### i. Restricted Eligibility

In accordance with 2 CFR 910.126, Competition, eligibility for award is restricted to a State.<sup>31</sup>

### ii. Individuals

U.S. citizens and lawful permanent residents are eligible to apply for funding as a subrecipient.

### iii. Domestic Entities

The proposed prime recipient and subrecipient(s) must be domestic entities. The following types of domestic entities are eligible to participate as a subrecipient of this FOA:

1. Institutions of higher education;
2. For-profit entities;
3. Non-profit entities; and
4. State and local governmental entities, and Tribal Nations.

To qualify as a domestic entity, the entity must be organized, chartered or incorporated (or otherwise formed) under the laws of a particular state or territory of the United States; have majority domestic ownership and control; and have a physical place of business in the United States.

DOE/NNSA FFRDCs are eligible to apply for funding as a subrecipient but are not eligible to apply as a prime recipient. **NETL is not eligible for award under this announcement and may not be proposed as a subrecipient on another entity's application. An application that includes NETL as a prime recipient or subrecipient will be considered non-responsive.**

Non-DOE/NNSA FFRDCs are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

Federal agencies and instrumentalities (other than DOE) are eligible to participate as a subrecipient but are not eligible to apply as a prime recipient.

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<sup>31</sup> "State means any state of the United States, the District of Columbia, the Commonwealth of Puerto Rico, U.S. Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and any agency or instrumentality thereof exclusive of local governments." 2 CFR 200.1.



Entities banned from doing business with the United States government such as entities debarred, suspended, or otherwise excluded from or ineligible for participating in Federal programs are not eligible.

Nonprofit organizations described in section 501(c)(4) of the Internal Revenue Code of 1986 that engaged in lobbying activities after December 31, 1995, are **not** eligible to apply for funding.

#### **iv. Foreign Entities**

In limited circumstances, DOE may approve a waiver to allow a foreign entity to participate as a subrecipient. If the applicant seeks to include a foreign entity as a subrecipient, the applicant must submit a separate explicit written waiver request in the Full Application for each proposed foreign subrecipient.

Appendix B lists the information that must be included in a foreign entity waiver request. The applicant does not have the right to appeal DOE's decision concerning a waiver request.

### **B. Cost Matching**

Applicants are bound by the cost match proposed in their Full Applications if selected for award negotiations. For all applications, the cost match must be at least 30% of the total Federal Funds allocated. "Cost matching" for the non-federal share is calculated as a percentage of the Federal funds only, rather than the Total Project Cost.

The Total Estimated Project Cost is the sum of Federal government share and applicant match of the Federal government share. The cost match must come from Non-Federal sources unless otherwise allowed by law. By accepting Federal Funds for this award, the Recipient agrees to be liable for its percentage match of Federal government share, on a budget period basis (if applicable) even if the project is terminated early or is not funded to completion.

Cost match may come from project participants, state or local governments or other third-party financing. An applicant selected under this FOA cannot use, designate or leverage federal funding, such as DOE Loan Guarantees, to provide the required cost match or to otherwise support the same scope that is proposed in response to this FOA.

Also, in general, deferred or avoided costs such as tax credits may be considered in the overall project business case but cannot be counted towards cost match requirements.

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This policy does not limit your organization's ability to apply for, obtain, or execute a project funded with a DOE Loan that is outside the scope of the BIL funded project. Additionally, the achievement of MESC project objectives must not rely upon a current or future DOE Loan Guarantee for another project.

DOE understands that projects selected under this FOA may require the use of existing data. For purposes of this FOA, DOE will consider data that is commercially available at an established market price to be an allowable cost under the project (either as DOE share or non-federal cost match) but DOE will not consider in-kind data (e.g., data, owned by an entity, that is not routinely sold commercially but is instead donated to the project and assigned a value) to be an allowable cost under the project, including as Recipient cost match. Estimation methods used by the Recipient to assign a value to in-kind data cannot be objectively verified by DOE and therefore will not be accepted by DOE as an allowable cost under any project selected from this FOA. Consequently, DOE will not recognize in-kind data costs in any resulting approved DOE budget.

To assist applicants in calculating proper cost amounts, DOE has included a cost match information sheet and sample cost match calculation as Appendix A to this FOA.

**i. Legal Responsibility**

Although the cost match requirement applies to the project as a whole, including work performed by members of the project team other than the prime recipient, the prime recipient is legally responsible for paying the entire cost match. The Prime Recipient's cost match obligation is expressed in the Cooperative Agreement as a static amount in US dollars (cost match amount) and as a percentage of the Total Federal share (cost match percentage). If the funding agreement is terminated prior to the end of the project period, the prime recipient is required to contribute at least the cost match percentage of total Federal expenditures incurred through the date of termination.

The prime recipient is solely responsible for managing cost match contributions by the project team and enforcing cost match obligations assumed by project team members in subawards or related agreements.

**ii. Cost Match Allocation**

Each project team is free to determine how best to allocate the cost match requirement among the team members. The amount contributed by individual project team members may vary, as long as the cost match requirement for the project as a whole is met.

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### **iii. Cost Match Types and Allowability**

Every cost match contribution must be allowable under the applicable federal cost principles, as described in Section IV.I.i. of the FOA. In addition, cost match must be verifiable upon submission of the Full Application.

Project teams may provide cost match in the form of cash or in-kind contributions. Cost match may be provided by the prime recipient, subrecipients, or third parties (entities that do not have a role in performing the scope of work). Vendors/contractors may not provide cost match. Any partial donation of goods or services is considered a discount and is not allowable.

Cash contributions include, but are not limited to: personnel costs, fringe costs, supply and equipment costs, indirect costs and other direct costs.

In-kind contributions are those where a value of the contribution can be readily determined, verified and justified but where no actual cash is transacted in securing the good or service comprising the contribution. Allowable in-kind contributions include but are not limited to: the donation of volunteer time or the donation of space or use of equipment.

Project teams may use funding or property received from state or local governments to meet the cost requirement, so long as the funding was not provided to the state or local government by the federal government.

The recipient may not use the following sources to meet its cost match obligations including, but not limited to:

- Revenues or royalties from the prospective operation of an activity beyond the project period;
- Proceeds from the prospective sale of an asset of an activity;
- Federal funding or property (e.g., federal grants, equipment owned by the federal government); or
- Expenditures that were reimbursed under a separate federal program.

Project teams may not use the same cash or in-kind contributions to meet cost match requirements for more than one project or program.

Cost match contributions must be specified in the project budget, verifiable from the prime recipient's records, and necessary and reasonable for proper and efficient accomplishment of the project. As all sources of cost match are considered part of total project cost, the cost match dollars will be scrutinized under the same federal regulations as federal dollars to the project. Every cost match contribution must be reviewed and approved in advance by the Contracting

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Officer and incorporated into the project budget before the expenditures are incurred.

Applicants are encouraged to refer to 2 CFR 200.306 and 2 CFR 910.130 for additional cost matching requirements.

**iv. Cost Match Contributions by FFRDCs**

Because FFRDCs are funded by the federal government, costs incurred by FFRDCs generally may not be used to meet the cost match requirement. FFRDCs may contribute cost match only if the contributions are paid directly from the contractor's Management Fee or another non-federal source.

**v. Cost Match Verification**

Applicants are required to provide written assurance of their proposed cost match contributions in their Full Applications.

Upon selection for award negotiations, applicants are required to provide additional information and documentation regarding their cost match contributions. Please refer to Appendix A of the FOA.

**vi. Cost Match Payment**

DOE requires prime recipients to contribute the cost match amount incrementally over the life of the award. Specifically, the prime recipient's cost match for each billing period must always reflect the overall cost match ratio negotiated by the parties (i.e., the total amount of cost matching on each invoice when considered cumulatively with previous invoices must reflect, at a minimum, the cost matching percentage negotiated).

In limited circumstances, and where it is in the government's interest, the DOE Contracting Officer may approve a request by the prime recipient to meet its cost match requirements on a less frequent basis, such as monthly or quarterly. Regardless of the interval requested, the prime recipient must be up to date on cost match at each interval. Such requests must be sent to the Contracting Officer during award negotiations and include the following information: (1) a detailed justification for the request; (2) a proposed schedule of payments, including amounts and dates; (3) a written commitment to meet that schedule; and (4) such evidence as necessary to demonstrate that the prime recipient has complied with its cost match obligations to date. The Contracting Officer must approve all such requests before they go into effect.

**C. Compliance Criteria**

All applicant submissions must:

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- comply with the applicable content and form requirements listed in Section IV. of the FOA;
- include all required documents;
- be successfully uploaded in Clean Energy Infrastructure Exchange <https://infrastructure-exchange.energy.gov/>, including clicking the “Submit” button; and
- be submitted by the deadline stated in the FOA.

DOE will not review or consider submissions submitted through means other than Clean Energy Infrastructure Exchange, submissions submitted after the applicable deadline, or incomplete submissions.

**Applicants are strongly encouraged to submit their Full Applications and Replies to Reviewer Comments at least 48 hours in advance of the submission deadline.**

Under normal conditions (i.e., at least 48 hours in advance of the submission deadline), applicants should allow at least 1 hour to submit Full Application and Reply to Reviewer Comments. Once the Full Application and Reply to Reviewer Comments are submitted in Clean Energy Infrastructure Exchange, applicants may revise or update that submission until the expiration of the applicable deadline. If changes are made to any of these documents, the applicant must resubmit the Full Application and Reply to Reviewer Comments before the applicable deadline. DOE will not extend the submission deadline for applicants that fail to submit required information by the applicable deadline due to server/connection congestion.

## **D. Responsiveness Criteria**

All “Applications Specifically Not of Interest,” as described in Section I.C. of the FOA, are deemed nonresponsive and are not reviewed or considered.

## **E. Other Eligibility Requirements**

### **i. Requirements for DOE/NNSA and non-DOE/NNSA FFRDCs Included as a Subrecipient**

DOE/NNSA and non-DOE/NNSA FFRDCs may be proposed as a subrecipient on another entity’s application subject to the following guidelines:

- a. Authorization for non-DOE/NNSA FFRDCs  
The federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of a FFRDC must be consistent with its authority under its award.
- b. Authorization for DOE/NNSA FFRDCs

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The cognizant Contracting Officer for the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The following wording is acceptable for this authorization:

Authorization is granted for the Laboratory to participate in the proposed project. The work proposed for the Laboratory is consistent with or complementary to the missions of the Laboratory and will not adversely impact execution of the DOE assigned programs at the Laboratory.

c. Funding, Cost Match and Subaward with FFRDCs

DOE will NOT fund DOE/NNSA FFRDCs participating as a subrecipient through the DOE field work authorization process. DOE will NOT fund non-DOE/NNSA FFRDCs through an interagency agreement with the sponsoring agency.

Therefore, the prime recipient and FFRDC are responsible for entering into an appropriate subaward that will govern, among other things, the funding of the FFRDC portion of the work from the prime recipient under its DOE award. Such an agreement must be entered into before any project work begins.

The applicant should prepare the budgets utilizing rates appropriate for funding the FFRDCs through subawards. The applicant's cost match requirement will be based on 30% of the total Federal Funds allocated.

d. Responsibility

The prime recipient will be the responsible authority regarding the settlement and satisfaction of all contractual and administrative issues including, but not limited to disputes and claims arising out of any agreement between the prime recipient and the FFRDC.

e. Limit on FFRDC effort

The scope of work to be performed by the FFRDC may not be more significant than the scope of work to be performed by the applicant.

## **F. Limitation on Number of Full Applications Eligible for Review**

An entity may only submit one Full Application to this FOA. If an entity submits more than one Full Application, DOE will request a determination from the applicant's authorizing representative as to which application should be reviewed. Any other submissions received listing the same entity as the applicant will not be eligible for further consideration. This limitation does not prohibit an applicant

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from collaborating on other applications (e.g., as a potential subrecipient or partner) so long as the entity is only listed as the applicant on one Full Application.

## **G. Questions Regarding Eligibility**

DOE will not make eligibility determinations for potential applicants prior to the date on which applications to this FOA must be submitted. The decision whether to submit an application in response to this FOA lies solely with the applicant.

# **IV. Application and Submission Information**

## **A. Application Process**

The application process will include only a Full Application phase.

A **Control Number** will be issued when the applicant begins the Clean Energy Infrastructure Exchange application process. This control number must be included with all application documents. Specifically, the control number must be prominently displayed on the upper right corner of the header of every page and included in the file name (i.e., **Control Number\_Applicant Name\_Full Application**).

Full Applications must conform to the following requirements:

- Each must be submitted in Adobe PDF format unless stated otherwise;
- Each must be written in English;
- All pages must be formatted to fit on 8.5 x 11-inch paper with margins not less than one inch on every side. Use Calibri typeface, a black font color, and a font size of 12 point or larger (except in figures or tables, which may be 10-point font). A symbol font may be used to insert Greek letters or special characters, but the font size requirement still applies. References must be included as footnotes or endnotes in a font size of 10 or larger. Footnotes and endnotes are counted toward the maximum page requirement;
- Page numbers must be included in the footer of every page; and
- Each submission must not exceed the specified maximum page limit, including cover page, charts, graphs, maps, and photographs when printed using the formatting requirements set forth above and single spaced. If applicants exceed the maximum page lengths indicated below, DOE will review only the authorized number of pages and disregard any additional pages.

### **i. Additional Information on Clean Energy Infrastructure Exchange**

Clean Energy Infrastructure Exchange is designed to enforce the deadlines specified in this FOA. The “Apply” and “Submit” buttons will automatically disable

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at the defined submissions deadlines. Should applicants experience problems with Clean Energy Infrastructure Exchange, the following information may be helpful.

Applicants that experience issues with submission PRIOR to the FOA deadline: In the event that an applicant experiences technical difficulties with a submission, the applicant should contact the Clean Energy Infrastructure Exchange helpdesk for assistance ([InfrastructureExchangeSupport@hq.doe.gov](mailto:InfrastructureExchangeSupport@hq.doe.gov)). The Clean Energy Infrastructure Exchange helpdesk and/or the Clean Energy Infrastructure Exchange system administrators will assist applicants in resolving issues.

## **B. Application Forms**

The application forms and instructions are available on Clean Energy Infrastructure Exchange. To access these materials, go to <https://infrastructure-exchange.energy.gov/> and select the appropriate funding opportunity number.

Note: The maximum file size that can be uploaded to the Clean Energy Infrastructure Exchange website is 10MB. Files in excess of 10MB cannot be uploaded, and hence cannot be submitted for review. If a file exceeds 10MB but is still within the maximum page limit specified in the FOA, it must be broken into parts and denoted to that effect. For example:

**TechnicalVolume\_Part\_1**

**TechnicalVolume\_Part\_2**

**MESC will not accept late submissions that resulted from technical difficulties due to uploading files that exceed 10MB.**

## **C. Content and Form of the Full Application**

Applicants must submit a Full Application by the specified due date and time to be considered for funding under this FOA. Applicants must complete the following application forms found on the Clean Energy Infrastructure Exchange website at <https://infrastructure-exchange.energy.gov/>, in accordance with the instructions.

All Full Application documents must be marked with the Control Number issued to the applicant. Applicants will receive a control number upon clicking the “Create Full Application” button in Clean Energy Infrastructure Exchange and should include that control number in the file name of their Full Application submission (i.e., *Control Number\_Applicant Name\_Full Application*).

### **i. Full Application Content Requirements**

MESC will not review or consider non-responsive Full Applications (see Section III. of the FOA).

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Each Full Application shall be limited to a single concept. Unrelated concepts shall not be consolidated in a single Full Application. Full Applications must conform to the following requirements and must not exceed the stated page.

Component	File Format	Page Limit	File Name
SF-424	PDF	n/a	ControlNumber_LeadOrganization_App424
Technical Volume (inclusive of Statement of Project Objectives)	PDF	20	ControlNumber_LeadOrganization_TechnicalVolume
Resumes	PDF	2 pages each	ControlNumber_LeadOrganization_Resumes
Letters of Commitment	PDF	1 page each	ControlNumber_LeadOrganization_LOCs
Community Partnership Documentation	PDF	10	ControlNumber_LeadOrganization_PartnerDocs
Budget Justification Workbook	MS Excel	N/A	ControlNumber_LeadOrganization_Budget_Justification
Summary for Public Release	PDF	1	ControlNumber_LeadOrganization_Summary
Summary Slides	MS PowerPoint	5	ControlNumber_LeadOrganization_Slides
Subrecipient Budget Justification	MS Excel	N/A	ControlNumber_LeadOrganization_Subrecipient_Budget_Justification
Authorization from cognizant Contracting Officer for FFRDC	PDF	N/A	ControlNumber_LeadOrganization_FFRDCAuth
SF-LLL Disclosure of Lobbying Activities	Form	N/A	ControlNumber_LeadOrganization_SF-LLL
Foreign Entity Waiver Requests and Foreign Work Waiver Requests	PDF	N/A	ControlNumber_LeadOrganization_Waiver
Community Benefits Plan: Job Quality and Equity	PDF	12	ControlNumber_LeadOrganization_CBenefits
Current and Pending Support	PDF	N/A	ControlNumber_LeadOrganization_CPS
Locations of Work	PDF	N/A	Control Number_LeadOrganization_LOW
Environmental Questionnaire	PDF	N/A	Control Number_LeadOrganization_EQ
Potentially Duplicative Funding Notice (if applicable)	PDF	N/A	Control Number_LeadOrganization_PDFN.pdf

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For example:

**TechnicalVolume\_Part\_1**

**TechnicalVolume\_Part\_2**

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MESC provides detailed guidance on the content and form of each component below.

**ii. SF-424: Application for Federal Assistance**

Complete all required fields in accordance with the instructions on the form. The list of certifications and assurances in Field 21 can be found at <http://energy.gov/management/office-management/operational-management/financial-assistance/financial-assistance-forms>, under Certifications and Assurances. Note: The dates and dollar amounts on the SF-424 are for the complete project period and not just the first project year, first phase or another subset of the project period. Save the SF-424 in a single PDF file using the following convention for the title “ControlNumber\_LeadOrganization\_424”.

**iii. Technical Volume**

The Technical Volume must be submitted in PDF format. The Technical Volume must conform to the following content and form requirements, including maximum page lengths. If applicants exceed that maximum page lengths indicated below, MESC will review only the authorized number of pages and disregard any additional pages. This volume must address the technical review criteria as discussed in Section V. of the FOA. Save the Technical Volume in a single PDF file using the following convention for the title convention for the title “ControlNumber\_LeadOrganization\_TechnicalVolume”.

Applicants must provide sufficient citations and references to the primary research literature to justify the claims and approaches made in the Technical Volume. However, MESC and reviewers are under no obligation to review cited sources.

The Technical Volume to the Full Application may not be more than 20 pages, including the cover page, table of contents, and all citations, charts, graphs, maps, photos, or other graphics, and must include all of the information in the table below. The applicant should consider the weighting of each of the technical review criterion (see Section V. of the FOA) when preparing the Technical Volume.

The Technical Volume must conform to the following content requirements:

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Technical Volume Content Requirements	
SECTION/PAGE LIMIT	DESCRIPTION
Cover Page	The cover page should include the applicant's name, project title, technical and business points of contact, names of project managers and senior/key personnel's names, and any statements regarding confidentiality. Any other supporting or partnering institutions should also be identified.
Project Overview	<p>The Project Overview should concisely state what will be detailed in later sections. When describing the resources being deployed within the State, applicants should be sure to specify whether a program is targeting smart manufacturing, high performance computing, or both. For the purposes of this section, the term "smart manufacturing technologies" is used to refer to both types of resources.</p> <p>The Project Overview should be sure to contain the following information:</p> <ul style="list-style-type: none"><li>• Identify the prime applicant within the State and discuss the applicant's background and current activities it provides in support of SMMs, including any activities focused on accelerating adoption of smart manufacturing technologies, as well as related strengths, capabilities, and successes.</li><li>• Discuss any partnerships among State government offices or agencies that may be established to implement the project.</li><li>• Discuss the manufacturing sector within the State, to include:<ul style="list-style-type: none"><li>a) The role of SMMs in the State's economy, including opportunities for competitive advantage and opportunities to leverage the State's manufacturing base to advance American competitiveness in a global net zero economy.</li><li>b) The current needs and capabilities of SMMs, including with respect to adoption of smart manufacturing technologies.</li><li>c) Assets within the state (i.e., workforce, innovation clusters, natural resources, etc.) that can be leveraged to support adoption of smart manufacturing technologies by SMMs.</li><li>d) Specific opportunities to support disadvantaged communities through deployment of smart manufacturing technologies by SMMs.</li></ul></li><li>• Provide an overview of the project proposal, to include:<ul style="list-style-type: none"><li>a) the proposed project location(s)</li><li>b) the types of activities and services the applicant seeks to offer to SMMs through this FOA;</li><li>c) the specific industries, communities, or demographics the applicant seeks to target with the project, if applicable.</li></ul></li></ul>

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	<ul style="list-style-type: none"><li>• Discuss any local, regional, and national resources the applicant intends to leverage or partner with to facilitate access to smart manufacturing technologies among SMMs.</li><li>• Identify the intended goals and objectives of the project, including how the project addresses FOA objectives.</li><li>• Discuss the anticipated number of SMMs the state expects to support with the proposed project.</li><li>• Describe how the proposed project will advance the state’s manufacturing sector and improve the competitiveness of the domestic manufacturing base as measured by, for example, the potential for improved efficiencies to impact the state’s energy output or the increase in capacity to meet current and future demand.</li><li>• Explain how the proposed project activities will expand upon and improve current smart manufacturing and/or HPC resources for SMMs as compared to the current baseline, and why DOE funding is needed to achieve the Program goals, objectives, and responsibilities.</li></ul> <p><b>Note:</b> The applicant is expected to elaborate on any plans, goals, or objectives identified in this overview using “SMART” milestones (Specific, Measurable, Achievable, Relevant, and Timely) in the following sections, as applicable.</p>
<b>Project Design and Impact</b>	<p>When describing the resources being deployed within the State, applicants should be sure to specify whether a program is targeting smart manufacturing, high performance computing, or both. For the purposes of this section, the term “smart manufacturing technologies” is used to refer to both types of resources.</p> <p>The Project Design and Impact should contain the following information:</p> <p><u>Project Design:</u></p> <ul style="list-style-type: none"><li>• Discuss the proposed organizational model and operational plan for implementing the project activities, explaining how this approach will best enable fulfillment of the Program goals, objectives, and responsibilities. This should include (i) the SMM base that the State intends to reach, including whether the State will seek to engage with SMMs broadly or whether the State will target its efforts on specific industries considered critical to the nation’s progress toward a net zero economy by 2050 and to the State’s economic development plans; (ii) how States will facilitate the accelerated deployment of smart manufacturing technologies (e.g., through training, technical assistance, technical or financial resources, etc.); and (iii) the deployment plan for providing these resources, such as identifying what existing programs within the State it will focus on and/or the national, State, regional, and local resources the State anticipates leveraging, and the specific services any partners would provide and strategic goals mentioned in Section I. A, iii.</li><li>• Provide a market overview with (i) a detailed description of the specific types of smart manufacturing technologies this project will introduce or expand utilization in the State and (ii) justification for each technology, as shown through an analysis of market demand and current supply.</li></ul>

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	<ul style="list-style-type: none"><li>Describe the applicant's timeline for implementation of the project plan. This should include a schedule of milestones and deliverables.</li></ul> <p><u>Program Partnerships:</u></p> <ul style="list-style-type: none"><li>The applicant's process for assessing existing assets available (locally, regionally, and nationally) and prospective utilization of these resources to further access to smart manufacturing technologies among SMMs within its State.</li><li>Describe the anticipated types of agreements the applicant expects to enter into with manufacturing assistance resource providers, workforce development programs, community organizations, and/or Labor organizations.</li><li>Discuss the structure for project management and collaboration among all partner organizations that will be a part of the project implementation. The applicant should include (i) a specific and detailed description of how tasks will be shared among the prime recipient and any subrecipients of funding or project partners; and (ii) a summary of the experience of any subrecipients and/or project partners in detailing their unique capabilities and expertise.</li><li>Discuss the applicant's plan for continuing this project beyond DOE funding, including identifying any Federal and/or non-Federal governmental assistance the project may seek or has received.</li></ul> <p><u>Engagement Strategy:</u></p> <ul style="list-style-type: none"><li>Provide a proposed plan for engaging in broad statewide outreach to SMMs and particularly minority-owned manufacturers and firms in disadvantaged communities.</li><li>Provide a proposed plan for coordinating and collaborating with key local, regional, and statewide resources such as:<ul style="list-style-type: none"><li>IACs and institutions of higher education, community colleges, trade schools, and union training programs;</li><li>National Laboratories, Manufacturing USA Network entities, and/or NIST MEPS; and</li><li>State, Tribal, regional, and local offices and entities; utilities and energy service providers; education, economic development, workforce development, and labor stakeholders; and private industry.</li></ul></li><li>Identify opportunities to work with governmental and nongovernmental stakeholders to leverage diverse financing tools to support implementation of project recommendations at SMMs.</li><li>As part of the proposed engagement plans, applicants should specify when each particular engagement will take place in the project's launch timeline.</li></ul> <p><u>Project Impact:</u></p> <ul style="list-style-type: none"><li>Provide a specific and detailed discussion of the anticipated impact and the economic development outcomes of the project, as compared to current baselines, including how in its ability to (i) contribute to job and</li></ul>
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	<p>economic growth within individual SMMs, across the manufacturing sector, and/or across the state resulting from the proposed project; (ii) the potential benefit to disadvantaged communities; and (iii) the benefits of any partnerships established through this Program (including, for example, as indicated by clear and quantified measures of job increase, state GDP increase, tax revenue increase, etc.).</p> <ul style="list-style-type: none"><li>• Discuss how this project plan contributes to the BIL goals of reinvigorating and reinvesting in the American industrial base; catalyzing American leadership and global competitiveness in the clean energy economy; and investing in the American manufacturing workforce, through a detailed analysis accompanied by clear and quantified measures. This may include demonstrating how the project will, as compared to the current baselines, improves production efficiency and output in the State, leads to a higher-quality workforce, and reduces costs for SMMs.</li><li>• In discussing the project impact, the applicant should provide justification for how these impacts are achievable and the timescale over which these impacts are anticipated.</li></ul>
<b>Workplan</b>	<p>The Workplan should include a summary of the Project Objectives, Technical Scope, Statement of Project Objectives (SOPO), Milestones, and Project Schedule. A detailed SOPO is requested as part of this section. The Workplan should contain the following information:</p> <ul style="list-style-type: none"><li>• <b>Project Objectives:</b> The applicant should provide a clear and concise (high-level) statement of the goals and objectives of the project as well as the expected outcomes.</li><li>• <b>Technical Scope Summary:</b> The applicant should provide a summary description of the overall work scope and approach to achieve the objective(s). The overall work scope is to be divided by performance periods that are separated by discrete, approximately annual decision points (see below for more information on Go/No-Go decision points). The applicant should describe the specific expected end result of each performance period, including milestones in the Community Benefits Plan.</li><li>• <b>SOPO:</b> Provide a detailed SOPO. A SOPO template is available on the Clean Energy Infrastructure Exchange website at <a href="https://infrastructure-exchange.energy.gov/">https://infrastructure-exchange.energy.gov/</a>. The SOPO, including the Milestone Table, must not exceed 10 pages. The SOPO will contain a more detailed description of the WBS and tasks. It should contain information on how the applicant will use technical expertise to facilitate deployment of smart manufacturing technologies, tools, and practices to small- and medium-sized manufacturers. This may include, for example, using expertise and resources to (i) identify opportunities for adoption, (ii) identify and resolve barriers to adoption, (iii) develop new or expand existing assessment tools to encourage adoption, (iv) or facilitate regional demonstrations.</li><li>• <b>Milestone Summary:</b> The applicant should provide a summary of appropriate milestones throughout the project to demonstrate success. A milestone may be either a progress measure (which can be activity based) or a SMART technical milestone. SMART milestones should be Specific,</li></ul>

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	<p>Measurable, Achievable, Relevant, and Timely, and must demonstrate a technical achievement rather than simply completing a task. Each project must have milestones at an appropriate frequency corresponding with project activities with at least one SMART technical milestone per year (depending on the project, more milestones may be necessary to comprehensively demonstrate progress). The applicant should also provide the means by which the milestone will be verified. The summary provided should be consistent with the Milestone Summary Table in the SOPO.</p> <ul style="list-style-type: none"><li>• <b><u>Go/No-Go Decision Points (See Section VI.B.xii. for more information on the Go/No-Go Review):</u></b> The applicant should provide a summary of project-wide Go/No-Go decision points at appropriate points in the Workplan. At a minimum, each project must have at least one project-wide Go/No-Go decision point for each budget period (12 to 18-month period) of the project. The applicant should also provide the specific technical and community benefits plan criteria to be used to evaluate the project at the Go/No-Go decision point. The summary provided should be consistent with the SOPO. Go/No-Go decision points are considered Specific, Measurable, Achievable, Relevant, and Timely (SMART) and can fulfill the requirement for an annual SMART milestone.</li><li>• <b>End of Project Goal:</b> The applicant should provide a summary of the end of project goal(s). At a minimum, each project must have one SMART end of project goal. The summary provided should be consistent with the SOPO and goals set forth in the Community Benefits Plan.</li><li>• <b>Buy America Requirements for Infrastructure Projects:</b> Within the first 2 pages of the Workplan, include a short statement on whether the project will involve the construction, alteration, and/or repair of infrastructure in the United States. See Appendix D for applicable definitions and other information to inform this statement.</li></ul>
<b>Project Team and Resources</b>	<p>The Project Team and Resources should contain the following information:</p> <ul style="list-style-type: none"><li>• Describe the project team's unique qualifications and expertise as they relate to this Program, including past experience in designing and implementing programs to support SMMs and partnering with public and private entities to do so; collaborating and coordinating with external stakeholders; and recruiting participation of private sector manufacturing firms in state-run programs.</li><li>• Describe any existing equipment, facilities, and resources that will be used to implement the project (if applicable).</li><li>• Provide a detailed and reasonable budget and spend plan for the proposed project, as well as address how the state will achieve the cost match requirement of the federal funds and long-term sustainability of the State program following the federal award.</li><li>• For multi-organizational teams, describe the roles and the work to be performed by each of the prime and sub project leads; agreement</li></ul>



	documentation between the applicant and sub(s); how the various efforts will be integrated and managed; and communication plans.
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#### iv. Resumes

A resume provides information that can be used by reviewers to evaluate the individual's relevant skills and experience of the key project personnel. Applicants must submit up to a two-page resume for each project manager and key personnel that includes the following:

1. Contact Information;
2. Education: Include all academic institutions attended, major/area, degree;
3. Training: (e.g.,) certification or credential from a Registered Apprenticeship or Labor Management Partnership;
4. Professional Experience: Beginning with the current position, list professional/academic positions in chronological order with a brief description;
5. List all current academic, professional, or institutional appointments, foreign or domestic, at the applicant institution or elsewhere, whether or not remuneration is received, and, whether full-time, part-time, or voluntary; and
6. There should be no lapses in time over the past ten years or since age 18, whichever time period is shorter.

As an alternative to a resume, it is acceptable to use the biographical sketch format approved by the National Science Foundation (NSF). The biographical sketch format may be generated by the Science Experts Network Curriculum Vita (SciENCv), a cooperative venture maintained at <https://www.ncbi.nlm.nih.gov/sciencv/>, and is also available at <https://nsf.gov/bfa/dias/policy/nsfapprovedformats/biosketch.pdf>. The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats.

Save the resumes in a single PDF file using the following convention for the title "ControlNumber\_LeadOrganization\_Resumes".

#### v. Letters of Commitment

Submit letters of commitment from all subrecipient and third-party cost providers. If applicable, the letter must state that the third party is committed to providing a specific minimum dollar amount or value of in-kind contributions allocated to the cost match. The following information for each third party contributing to the cost match should be identified: (1) the name of the organization; (2) the proposed dollar amount to be provided; and (3) the proposed cost match type – (cash or in-kind contributions). Each letter must not exceed 1



page. Save the letters of commitment in a single PDF file using the following convention for the title "ControlNumber\_LeadOrganization\_LOCs".

Letters of support or endorsement for the project from entities that do not have a substantive role in the project are not accepted.

**vi. Community Partnership Documentation**

In support of the Community Benefits Plan, applicants may submit documentation to demonstrate existing or planned partnerships with community entities, such as, organizations that work with local stakeholders most vulnerable to or affected by the project, such as organizations that carry out workforce development programs, labor unions, Tribal organizations, and community-based organizations that work with disadvantaged communities. The Partnership Documentation could be in the form of a letter on the partner's letterhead outlining the planned partnership signed by an officer of the entity, a Memorandum of Understanding, or other similar agreement. Such letters must state the specific nature of the partnership and must not be general letters of support. If the applicant intends to enter into Workforce and Community Agreements as part of the Community Benefits Plan, please include letters from proposed partners as appropriate. Each letter must not exceed 1 page. In total, the partnership documentation must not exceed 10 pages.

Save the partnership documentation in a single PDF file using the following convention for the title "ControlNumber\_LeadOrganization\_PartnerDoc".

**vii. Budget Justification Workbook**

Applicants must complete the Budget Justification Workbook, which is available on Clean Energy Infrastructure Exchange website at <https://infrastructure-exchange.energy.gov/>. Applicants must complete each tab of the Budget Justification Workbook for the project as a whole, including all work to be performed by the prime recipient and its subrecipients and contractors. Applicants should include costs associated with implementing the various BIL-specific requirements (e.g., Buy America requirements for infrastructure projects, Davis Bacon, Community Benefits Plan, reporting, oversight) and with required annual audits and incurred cost proposals in their proposed budget documents. Such costs may be reimbursed as a direct or indirect cost. The "Instructions and Summary" included with the Budget Justification Workbook will auto-populate as the applicant enters information into the Workbook. Applicants must carefully read the "Instructions and Summary" tab provided within the Budget Justification Workbook. Save the Budget Justification Workbook in a single Microsoft Excel file using the following convention for the title "ControlNumber\_LeadOrganization\_Budget\_Justification".

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**viii. Summary for Public Release**

Applicants must submit a one-page summary of their project that is suitable for dissemination to the public. It should be a self-contained document that identifies the name of the applicant, the lead project manager/project director/principal investigator(s), the project title, the objectives of the project, a description of the project, including methods to be employed, the potential impact of the project (e.g., benefits, outcomes), major participants (for collaborative projects), and the project's commitments and goals described in the Community Benefits Plan. This document must not include any proprietary or sensitive business information as DOE may make it available to the public after selections are made. The summary must not exceed 1 page when printed using standard 8.5 x 11 paper with 1" margins (top, bottom, left, and right) with font not smaller than 12-point.

Save the Summary for Public Release in a single PDF file using the following naming convention "ControlNumber\_LeadOrganization\_Summary".

**ix. Summary Slides**

Applicants must complete the supplied template to provide summary slides for the proposed project, which is available on the Clean Energy Infrastructure Exchange website at <https://infrastructure-exchange.energy.gov/>.

Save the Summary Slide in a single Microsoft PowerPoint file using the following convention for the title "ControlNumber\_LeadOrganization\_Slides".

**x. Subrecipient Budget Justification (if applicable)**

Applicants must provide a separate budget justification for each subrecipient that is expected to perform work estimated to be more than \$250,000 or 25 percent of the total work effort (whichever is less). The budget justification must include the same justification information described in the "Budget Justification" section above. Save each subrecipient budget justification in a Microsoft Excel file using the following convention for the title "ControlNumber\_LeadOrganization\_Subrecipient\_Budget\_Justification".

**xi. Authorization for non-DOE/NNSA or DOE/NNSA FFRDCs (if applicable)**

The federal agency sponsoring the FFRDC must authorize in writing the use of the FFRDC on the proposed project and this authorization must be submitted with the application. The use of a FFRDC must be consistent with the contractor's authority under its award. Save the Authorization in a single PDF file using the following convention for the title "ControlNumber\_LeadOrganization\_FFRDCAuth".





**xii. SF-LLL: Disclosure of Lobbying Activities (required)**

Recipients and subrecipients may not use any federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.

Recipients and subrecipients are required to complete and submit SF-LLL, “Disclosure of Lobbying Activities” (<https://www.grants.gov/web/grants/forms/sf-424-individual-family.html>) to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

- An officer or employee of any federal agency;
- A member of Congress;
- An officer or employee of Congress; or
- An employee of a member of Congress.

Save the SF-LLL in a single PDF file using the following convention for the title “ControlNumber\_LeadOrganization\_SF-LLL”.

**xiii. Waiver Requests (if applicable)**

**i. For Foreign Entity Participation**

For projects selected under this FOA, as set forth in Section III., all recipients and subrecipients must qualify as domestic entities. See Section III. To request a waiver of this requirement for subrecipients only, the applicant must submit an explicit waiver request in the Full Application. Appendix B lists the information that must be included in a waiver request.

**ii. Foreign Work Waiver Request**

As set forth in Section IV.I.iii., all work for projects selected under this FOA must be performed in the United States. To request a waiver of this requirement, the applicant must submit an explicit waiver request in the Full Application. Appendix B lists the information that must be included in a foreign work waiver request.

Save the Waivers in a single PDF file using the following convention for the title “ControlNumber\_LeadOrganization\_Waiver”.

**xiv. Community Benefits Plan: Job Quality and Equity**

The Community Benefits Plan: Job Quality and Equity (Community Benefits Plan or Plan) must set forth the applicant’s approach to ensuring that federal investments advance the following four goals: 1) community and labor

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engagement; 2) investing in job quality and workforce continuity; 3) advancing diversity, equity, inclusion, and accessibility (DEIA); and 4) contributing to the Justice40 Initiative. The below sections set forth the Plan requirements for each of the foregoing goals. At this stage of the application process, the Community Benefits Plan should indicate the applicant's intention to engage meaningfully with and encourage SMM beneficiaries to engage meaningfully with labor and community stakeholders on these goals, including the potential of entering into formal Workforce and Community Agreements.

The applicant's Community Benefits Plan must include at least one Specific, Measurable, Achievable, Relevant and Timely (SMART) milestone per budget period in order to measure the progress on the proposed actions. The Community Benefits Plan will be evaluated as part of the technical review process. If DOE selects a project, DOE will incorporate the Community Benefits Plan into the award, and the recipient must implement its Community Benefits Plan as part of carrying out its project. Public transparency around the plan and SMART commitments is necessary for ensuring accountability. In addition, during the life of the DOE award, DOE will evaluate the recipient's progress, including as part of the Go/No-Go review process.

The Community Benefits Plan must not exceed 12 pages. It must be submitted in PDF format. This Plan must address the technical review criterion titled, "Community Benefits Plan: Job Quality & Equity." See Section IV. of the FOA.

For additional information, see [Community Benefits Plan Frequently Asked Questions \(FAQs\) | Department of Energy](#). In addition, please refer to the program-specific Community Benefits Plan Guidance (if applicable).

**Save the Community Benefits Plan in a single PDF file using the following naming convention for the title "ControlNumber\_LeadOrganization\_CBenefits.pdf".**

**1. Community and Labor Engagement:** The Community Benefits Plan must describe the applicant's actions to date and future plans to encourage SMMs to engage with labor unions and community stakeholders—such as local governments, Tribal governments, and community-based organizations that support or work with underserved communities, including Disadvantaged Communities as defined for purposes of the Justice40 Initiative. By facilitating community input, social buy-in, and accountability, such engagement can substantially reduce or eliminate stalls or slowdowns, litigation, and other risks associated with project implementation. Community and labor engagement should lay the groundwork for the eventual negotiation of Workforce and Community Agreements, which could take the form of one or more kinds of negotiated agreements with communities, labor unions, or, ideally, both. Registered apprenticeship programs, card check neutrality, and local and targeted

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hiring goals are all examples of provisions that Workforce and Community Agreements could cover that would increase the success of a DOE-funded project.

Applicants should also provide Community and Labor Partnership Documentation from representative organizations reflecting substantive engagement and feedback on applicant's approach to community benefits including job quality and workforce continuity; diversity, equity, inclusion, and accessibility; and the Justice40 Initiative detailed below.

**2. Investing in Job Quality and Workforce Continuity:** A well-qualified, skilled, and trained workforce is necessary to ensure project stability, continuity, and success, and to meet program goals. High-quality jobs are critical to attracting and retaining the qualified workforce required.

The Plan must describe the applicant's approach to investing in workforce education and training of both new and incumbent workers and ensuring jobs are of sufficient quality to attract and retain skilled workers in the industry.

Specific components of the plan must include:

- a. A summary of the applicant's plan to attract, train, and retain a skilled and well qualified workforce in manufacturing in their state. States, as applicants for this FOA, should leverage their own authorities to encourage SMM program participants to utilize collective bargaining agreements, labor-management partnerships, or other similar agreements and would provide evidence of such a plan. Alternatively, applicants may describe:
  - i) wages, benefits, and other worker supports to be provided benchmarking against prevailing wages for construction and local median wages for other occupations;
  - ii) commitments to invest in workforce education and training, including measures to reduce attrition, increase productivity from a committed and engaged workforce, and support the development of resilient, skilled, and stable workforce for implementing the project activities; and
  - iii) efforts SMMs use to engage employees in the design and execution of workplace safety and health plans.
- b. State applicants are encouraged to support collective bargaining and freedom to organize within SMMs. Applicants should provide description of how SMM partners in this program provide employees an ability to organize, bargain collectively, and participate, through labor organizations of their choosing, in decisions that affect them, contributes to the effective conduct of business, and facilitates amicable settlements of any potential disputes between employees and employers, providing assurances of project efficiency,

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continuity, and multiple public benefits. In the description, explain whether workers can form and join unions of their choosing, and how they will have the opportunity to organize with the purposes of exercising collective voice in the workplace.

**3. DEIA:** The Community Benefits Plan must include a section describing how diversity, equity, inclusion, and accessibility (DEIA) objectives will be incorporated into the project. Specifically, applicants are required to submit a Diversity, Equity and Inclusion Plan that describes the actions the applicant will take to foster a welcoming and inclusive environment, support people from groups underrepresented in STEM, advance equity, and encourage the inclusion of individuals from these groups in the project; and the extent the project activities will be located in, or benefit underserved communities (also see Section I.A). The plan should include at least one SMART milestone per Budget Period supported by metrics to measure the success of the proposed actions and will be incorporated into the award if selected. The Diversity, Equity, and Inclusion Plan should contain the following information:

- Equity Impacts: the impacts of the proposed project on underserved communities, including social and environmental impacts;
- Benefits: The overall benefits of the proposed project, if funded, to underserved communities; and
- How diversity, equity, and inclusion objectives will be incorporated in the project.

The following is a non-exhaustive list of actions that can serve as examples of ways the proposed project could incorporate diversity, equity, and inclusion elements. These examples should not be considered either comprehensive or prescriptive. Applicants may include appropriate actions not covered by these examples.

- a. Commitment to encourage and support local and regional partnership with underrepresented businesses, educational institutions, and training organizations that serve workers who face barriers to accessing quality jobs, and/or other project partners to help address DEIA.
- b. Invest in job readiness training and supportive services, such as childcare and transportation, to reduce barriers to good jobs and quality training opportunities for disadvantaged and underrepresented workers.
- c. Specific plans for engaging with and providing assistance to small- and medium-sized manufacturing firms that are Minority-Owned, Woman-Owned, and Veteran-Owned; as well as identifying and partnering with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses and Veteran Owned Businesses as vendors and sub-contractors for bids on supplies, services and equipment.

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**4. Justice40 Initiative:** Applicants must provide an overview of benefits to disadvantaged communities that the project can deliver, supported by measurable milestones.

Specifically, the Justice40 Initiative section must include:

1. Identification of applicable disadvantaged communities to which the anticipated project benefits will flow based on location of SMM participants.
2. Identification of Applicable Benefits that are quantifiable, measurable, and trackable, including, at a minimum, a discussion of the relevance of each of the eight DOE Justice40 Initiative benefits outlined below.

Benefits include (but are not limited to) measurable direct or indirect investments or positive project outcomes that achieve or contribute to the following in disadvantaged communities: (1) a decrease in energy burden; (2) a decrease in environmental exposure and burdens; (3) an increase in access to low-cost capital; (4) an increase in high-quality job creation, the clean energy job pipeline, and job training for individuals; (5) increases in clean energy enterprise creation and contracting (e.g., minority-owned or disadvantaged business enterprises); (6) increases in energy democracy, including community ownership; (7) increased parity in clean energy technology access and adoption; and (8) an increase in energy resilience. In addition, applicants should also discuss how the project will maximize all of the benefits listed in #4.

3. A description of how and when anticipated benefits are expected to flow to disadvantaged communities. For example, will the benefits be provided directly within the disadvantaged communities identified in the Justice40 Initiative section, or are the benefits expected to flow in another way? Further, will the benefits flow during project development or after project completion, and how will applicant track benefits delivered?
4. A discussion of anticipated negative and cumulative environmental impacts on disadvantaged communities. Are there anticipated negative or positive environmental impacts associated with the project, and how will the applicant mitigate any negative impacts? Within the context of cumulative impacts created by the project, applicants should use Environmental Protection Agency EJSCREEN tool to quantitatively discuss existing environmental impacts in the project area. See [EJScreen: Environmental Justice Screening and Mapping Tool | US EPA](#)

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For projects funded under this FOA, DOE will provide specific reporting guidance for the benefits described above.

**xv. Current and Pending Support**

Current and pending support is intended to allow the identification of potential duplication, overcommitment, potential conflicts of interest or commitment, and all other sources of support. As part of the application, the principal investigator or lead project manager and all senior/key personnel at the applicant and subrecipient level must provide a list of all sponsored activities, awards, and appointments, whether paid or unpaid; provided as a gift with terms or conditions or provided as a gift without terms or conditions; full-time, part-time, or voluntary; faculty, visiting, adjunct, or honorary; cash or in-kind; foreign or domestic; governmental or private-sector; directly supporting the individual's research or indirectly supporting the individual by supporting students, research staff, space, equipment, or other research expenses. All connections with foreign government-sponsored talent recruitment programs must be identified in current and pending support.

For every activity, list the following items:

- The sponsor of the activity or the source of funding;
- The award or other identifying number;
- The title of the award or activity. If the title of the award or activity is not descriptive, add a brief description of the research being performed that would identify any overlaps or synergies with the proposed research;
- The total cost or value of the award or activity, including direct and indirect costs and cost . For pending proposals, provide the total amount of requested funding;
- The award period (start date – end date); and
- The person-months of effort per year being dedicated to the award or activity.

To identify overlap, duplication of effort, or synergistic efforts, append a description of the other award or activity to the current and pending support.

Details of any obligations, contractual or otherwise, to any program, entity, or organization sponsored by a foreign government must be provided on request to either the applicant institution or DOE. Supporting documents of any identified source of support must be provided to DOE on request, including certified translations of any document.

PIs and senior/key personnel must provide a separate disclosure statement listing the required information above regarding current and pending support. Each

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individual must sign and date their respective disclosure statement and include the following certification statement:

I, [Full Name and Title], certify to the best of my knowledge and belief that the information contained in this Current and Pending Support Disclosure Statement is true, complete, and accurate. I understand that any false, fictitious, or fraudulent information, misrepresentations, half-truths, or omissions of any material fact, may subject me to criminal, civil or administrative penalties for fraud, false statements, false claims or otherwise. (18 U.S.C. §§ 1001 and 287, and 31 U.S.C. §§ 3729-3733 and 3801-3812). I further understand and agree that (1) the statements and representations made herein are material to DOE's funding decision, and (2) I have a responsibility to update the disclosures during the project period of performance of the award should circumstances change which impact the responses provided above.

The information may be provided in the format approved by the National Science Foundation (NSF), which may be generated by the Science Experts Network Curriculum Vita (SciENCv), a cooperative venture maintained at <https://www.ncbi.nlm.nih.gov/sciencv/>, and is also available at <https://www.nsf.gov/bfa/dias/policy/nsfapprovedformats/cps.pdf>. The use of a format required by another agency is intended to reduce the administrative burden to researchers by promoting the use of common formats. If the NSF format is used, the individual must still include a signature, date, and a certification statement using the language included in the paragraph above.

**Save the Current and Pending Support in a single PDF file using the following naming convention for the title "ControlNumber\_LeadOrganization\_CPS".**

#### **Definitions:**

**Current and pending support** – (a) All resources made available, or expected to be made available, to an individual in support of the individual's RD&D efforts, regardless of (i) whether the source is foreign or domestic; (ii) whether the resource is made available through the entity applying for an award or directly to the individual; or (iii) whether the resource has monetary value; and (b) includes in-kind contributions requiring a commitment of time and directly supporting the individual's RD&D efforts, such as the provision of office or laboratory space, equipment, supplies, employees, or students. This term has the same meaning as the term Other Support as applied to researchers in NSPM-33: For researchers, Other Support includes all resources made available to a researcher in support of and/or related to all of their professional RD&D efforts, including resources provided directly to the individual or through the organization, and regardless of

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whether or not they have monetary value (e.g., even if the support received is only in-kind, such as office/laboratory space, equipment, supplies, or employees). This includes resource and/or financial support from all foreign and domestic entities, including but not limited to, gifts provided with terms or conditions, financial support for laboratory personnel, and participation of student and visiting researchers supported by other sources of funding.

**Foreign Government-Sponsored Talent Recruitment Program** – An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to United States entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.

**Senior/key personnel** – an individual who contributes to a substantive, meaningful way to the scientific development or execution of a research, development and demonstration (RD&D) project proposed to be carried out with DOE award.<sup>32</sup>

#### **xvi. Locations of Work**

The applicant must complete the supplied template by listing the city, state, and zip code + 4 for each location where project work will be performed by the prime recipient or subrecipient(s). Save the completed template as a MS Excel file using the following convention for the title “Control Number\_LeadOrganization\_LOW”.

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<sup>32</sup> Typically, these individuals have doctoral or other professional degrees, although individuals at the masters or baccalaureate level may be considered senior/key personnel if their involvement meets this definition. Consultants, graduate students, and those with a postdoctoral role also may be considered senior/key personnel if they meet this definition.

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**xvii. Environmental Questionnaire**

The applicant must complete the Environmental Questionnaire. This form is available on Clean Energy Infrastructure Exchange at <https://infrastructure-exchange.energy.gov>. Save the Environmental Questionnaire in a single PDF file using the following convention for the title “Control Number\_Lead Organization\_EQ”.

**xviii. Potentially Duplicate Funding Notice**

If the applicant or project team member has other active awards of federal funds, the applicant must determine whether the activities of those awards potentially overlap with the activities set forth in its application to this FOA. If there is a potential overlap, the applicant must notify DOE in writing of the potential overlap and state how it will ensure any project funds (i.e., recipient cost and federal funds) will not be used for identical cost items under multiple awards. Likewise, for projects that receive funding under this FOA, if a recipient or project team member receives any other award of federal funds for activities that potentially overlap with the activities funded the DOE award, the recipient must promptly notify DOE in writing of the potential overlap and state whether project funds from any of those other federal awards have been, are being, or are to be used (in whole or in part) for one or more of the identical cost items under the DOE award. If there are identical cost items, the recipient must promptly notify the DOE Contracting Officer in writing of the potential duplication and eliminate any inappropriate duplication of funding.

Save the Potentially Duplicative Funding Notice in a single PDF file using the following convention for the title “PDFN.pdf”.

**D. Content and Form of Replies to Reviewers Comments (Optional Submission)**

DOE will provide applicants with reviewer comments following the evaluation of all eligible Full Applications. Applicants have a brief opportunity to prepare a short Reply to Reviewer Comments (Reply). The Reply must not exceed three (3) pages. If a Reply is more than three (3) pages in length, DOE will review only the first three (3) pages and disregard any additional pages. Applicants may use the Reply to respond to one or more comments or to supplement their Full Application. The Reply may include text, graphs, charts, or data.

DOE will post the reviewer comments in Clean Energy Infrastructure Exchange. The expected submission deadline is on the cover page of the FOA; however, it is the applicant’s responsibility to monitor Clean Energy Infrastructure Exchange in the event that the expected date changes. The deadline will not be extended for applicants who are unable to timely submit their Reply due to failure to check

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Clean Energy Infrastructure Exchange or relying on the expected date alone. Applicants should anticipate having approximately three (3) business days to submit a Reply.

Applicants are not required to submit a Reply to Reviewer Comments. DOE will review and consider each eligible Full Application, even if no Reply is submitted or if the Reply is found to be ineligible.

## **E. Post Selection Information Requests**

If selected for award negotiations, MESC reserves the right to require that selected applicants provide additional or clarifying information regarding the application submissions, the project, the project team, the award requirements, and any other matters related to anticipated award. The following is a non-exhaustive list of examples information that may be required:

- Personnel proposed to work on the project and collaborating organizations (See Section VI.B.xvi. Participants and Collaborating Organizations);
- Current and Pending Support (See Sections IV.C.xv. and VI.B.xvii. Current and Pending Support);
- Other budget information;
- Letters of Commitment from third parties contributing to cost, if applicable;
- Name and phone number of the Designated Responsible Employee for complying with national policies prohibiting discrimination (See 10 CFR 1040.5);
- Information for the DOE Office of Civil Rights to process assurance reviews under 10 CFR 1040;
- Representation of Limited Rights Data and Restricted Software, if applicable;
- Information related to Davis-Bacon Act Requirements;
- Information related to any proposed Workforce and Community Agreement, as defined above in “Community Benefits Plan: Job Quality and Equity,” that applicants may have made with the relevant community; and
- Updated Environmental Questionnaire(s).

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## **F. Unique Entity Identifier (UEI) and System for Award Management (SAM)**

Each applicant (unless the applicant is an individual or federal awarding agency that is excepted from those requirements under 2 CFR 25.110(b) or (c), or has an exception approved by the federal awarding agency under 2 CFR 25.110(d)) is required to: (1) Be registered in the SAM at <https://www.sam.gov> before submitting its application; (2) provide a valid UEI number in its application; and (3) continue to maintain an active SAM registration with current information at all times during which it has an active federal award or an application or plan under consideration by a federal awarding agency. DOE may not make a federal award to an applicant until the applicant has complied with all applicable UEI and SAM requirements and, if an applicant has not fully complied with the requirements by the time DOE is ready to make a federal award, the DOE will determine that the applicant is not qualified to receive a federal award and use that determination as a basis for making a federal award to another applicant.

**NOTE:** Due to the high demand of UEI requests and SAM registrations, entity legal business name and address validations are taking longer than expected to process. Entities should start the UEI and SAM registration process as soon as possible. If entities have technical difficulties with the UEI validation or SAM registration process, they should utilize the [HELP](#) feature on [SAM.gov](#). SAM.gov will work entity service tickets in the order in which they are received and asks that entities not create multiple service tickets for the same request or technical issue. Additional entity validation resources can be found here: [GSAFSD Tier 0 Knowledge Base - Validating your Entity](#).

## **G. Submission Dates and Times**

All required submissions must be submitted in Clean Energy Infrastructure Exchange no later than 5 p.m. ET on the dates provided on the cover page of this FOA.

## **H. Intergovernmental Review**

This FOA is not subject to Executive Order 12372 – Intergovernmental Review of Federal Programs.

## **I. Funding Restrictions**

### **i. Allowable Costs**

All expenditures must be allowable, allocable, and reasonable in accordance with the applicable federal cost principles. Pursuant to 2 CFR 910.352, the cost principles in the Federal Acquisition Regulations (48 CFR 31.2) apply to for-profit

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entities. The cost principles contained in 2 CFR Part 200; Subpart E apply to all entities other than for-profits.

## **ii. Pre-Award Costs**

Applicants selected for award negotiations (selectee) must request prior written approval to charge pre-award costs. Pre-award costs are those incurred prior to the effective date of the federal award directly pursuant to the negotiation and in anticipation of the federal award where such costs are necessary for efficient and timely performance of the scope of work. Such costs are allowable only to the extent that they would have been allowable if incurred after the date of the federal award and **only** with the written approval of the federal awarding agency, through the DOE Contracting Officer.

Pre-award costs cannot be incurred prior to the Selection Official signing the Selection Statement and Analysis.

Pre-award expenditures are made at the selectee's risk. DOE is not obligated to reimburse costs: (1) in the absence of appropriations; (2) if an award is not made; or (3) if an award is made for a lesser amount than the selectee anticipated.

## **1. National Environmental Policy Act (NEPA) Requirements Related to Pre-Award Costs**

DOE's decision whether and how to distribute federal funds under this FOA is subject to NEPA. Applicants should carefully consider and should seek legal counsel or other expert advice before taking any action related to the proposed project that would have an adverse effect on the environment or limit the choice of reasonable alternatives prior to DOE completing the NEPA review process.

DOE does not guarantee or assume any obligation to reimburse pre-award costs incurred prior to receiving written authorization from the Contracting Officer. If the applicant elects to undertake activities that DOE determines may have an adverse effect on the environment or limit the choice of reasonable alternatives prior to receiving such written authorization from the Contracting Officer, the applicant is doing so at risk of not receiving federal funding for their project and such costs may not be recognized as allowable cost match. Nothing contained in the pre-award cost reimbursement regulations or any pre-award costs approval letter from the Contracting Officer override the requirement to obtain the written authorization from the Contracting Officer prior to taking any action that may have an adverse effect on the environment or limit the choice of reasonable alternatives. Likewise, if an application is selected for negotiation of award, and the prime recipient elects to undertake activities that are not authorized for federal funding by the Contracting Officer in advance of DOE completing a NEPA review, the prime recipient is doing so

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at risk of not receiving federal funding and such costs may not be recognized as allowable cost match.

### **iii. Performance of Work in the United States (Foreign Work Waiver)**

#### **1. Requirement**

All work performed under awards issued under this FOA must be performed in the United States. The prime recipient must flow down this requirement to its subrecipients.

#### **2. Failure to Comply**

If the prime recipient fails to comply with the Performance of Work in the United States requirement, DOE may deny reimbursement for the work conducted outside the United States and such costs may not be recognized as allowable recipient cost match. The prime recipient is responsible should any work under this award be performed outside the United States, absent a waiver, regardless of whether the work is performed by the prime recipient, subrecipients, contractors or other project partners.

#### **3. Waiver**

There may be limited circumstances where it is in the interest of the project to perform a portion of the work outside of the United States. To seek a foreign work waiver, the applicant must submit a written waiver request to MESC. Appendix B lists the information that must be included in a request for a foreign work waiver.

### **iv. Construction**

Recipients are required to obtain written authorization from the Contracting Officer before incurring any major construction costs.

### **v. Foreign Travel**

Foreign travel costs are not allowable under this FOA.

### **vi. Equipment and Supplies**

Property disposition may be required at the end of a project if the current fair market value of property exceeds \$5,000. For-profit entity disposition requirements are set forth at 2 CFR 910.360. Property disposition requirements for other non-federal entities are set forth in 2 CFR 200.310 – 200.316.

### **vii. Buy America Requirements for Infrastructure Projects**

Pursuant to the Build America Buy America Act, subtitle IX of BIL (Buy America, or “BABA”), Federally assisted projects that involve infrastructure work, undertaken by applicable recipient types, require that:

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- all iron, steel, and manufactured products used in the infrastructure work are produced in the United States; and
- all construction materials used in the infrastructure work are manufactured in the United States.

Whether a given project must apply this requirement is project-specific and dependent on several factors, such as the recipient's entity type, whether the work involves "infrastructure," as that term is defined in Section 70914 of the Bipartisan Infrastructure Law, and whether the infrastructure in question is publicly owned or serves a public function.

Please note that, based on the implementation guidance from the Office of Management and Budget (OMB) issued on April 18, 2022, the Buy America requirements of the BIL do not apply to DOE projects in which the prime recipient is a for-profit entity; the requirements only apply to projects whose prime recipient is a "non-Federal entity," e.g., a State, local government, Indian tribe, Institution of Higher Education, or nonprofit organization. Subawards should conform to the terms of the prime award from which they flow; in other words, for-profit prime recipients are not required to flow down these Buy America requirements to subrecipients, even if those subrecipients are non-Federal entities as defined above. Conversely, prime recipients which are non-Federal entities must flow the Buy America requirements down to all subrecipients, even if those subrecipients are for-profit entities. Finally, for all applicants—both non-Federal entities and for-profit entities—DOE is including a Program Policy Factor that the Selection Official may consider in determining which Full Applications to select for award negotiations that considers whether the applicant has made a commitment to procure U.S. iron, steel, manufactured products, and construction materials in its project.

The DOE financial assistance agreement will require each recipient: (1) to fulfill the commitments made in its application regarding the procurement of U.S.-produced products and (2) to fulfill the commitments made in its application regarding the procurement of other key component metals and manufactured products domestically that are deemed available in sufficient and reasonably available quantities or of a satisfactory quality at the time of award negotiation. Applicants may seek waivers of these requirements in very limited circumstances and for good cause shown. Further details on requesting a waiver can be found in Appendix C and the terms and conditions of an award.

Applicants are strongly encouraged to consult Appendix C for more information.





**viii. Davis-Bacon Act Requirements**

Projects awarded under this FOA will be funded under Division D of the Bipartisan Infrastructure Law. Accordingly, per Section 41101 of that law, all laborers and mechanics employed by the recipient, subrecipients, contractors or subcontractors in the performance of construction, alteration, or repair work funded in whole or in part under this FOA shall be paid wages at rates not less than those prevailing on similar projects in the locality, as determined by the Secretary of Labor in accordance with subchapter IV of chapter 31 of title 40, United States Code commonly referred to as the “Davis-Bacon Act” (DBA).

Applicants shall provide written assurance acknowledging the DBA requirements above, and confirming that the laborers and mechanics performing construction, alteration, or repair work on projects funded in whole or in part by awards made as a result of this FOA are paid or will be paid wages at rates not less than those prevailing on projects of a character similar in the locality as determined by subchapter IV of Chapter 31 of Title 40, United States Code (Davis-Bacon Act).

Applicants acknowledge that they will comply with all of the Davis-Bacon Act requirements, including but not limited to:

- (1) ensuring that the wage determination(s) and appropriate Davis-Bacon clauses and requirements are flowed down to and incorporated into any applicable subcontracts or subrecipient awards.
- (2) ensuring that if wage determination(s) and appropriate Davis-Bacon clauses and requirements are improperly omitted from contracts and subrecipient awards, the applicable wage determination(s) and clauses are retroactively incorporated to the start of performance.
- (3) being responsible for compliance by any subcontractor or subrecipient with the Davis-Bacon labor standards.
- (4) receiving and reviewing certified weekly payrolls submitted by all subcontractors and subrecipients for accuracy and to identify potential compliance issues.
- (5) maintaining original certified weekly payrolls for 3 years after the completion of the project and must make those payrolls available to the DOE or the United States Department of Labor (“DOL”) upon request, as required by 29 CFR 5.6(a)(2).
- (6) conducting payroll and job-site reviews for construction work, including interviews with employees, with such frequency as may be necessary to assure

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compliance by its subcontractors and subrecipients and as requested or directed by the DOE.

(7) cooperating with any authorized representative of the DOL in their inspection of records, interviews with employees, and other actions undertaken as part of a DOL investigation.

(8) posting in a prominent and accessible place the wage determination(s) and DOL Publication: WH-1321, Notice to Employees Working on Federal or Federally Assisted Construction Projects.

(9) notifying the Contracting Officer of all labor standards issues, including all complaints regarding incorrect payment of prevailing wages and/or fringe benefits, received from the recipient, subrecipient, contractor, or subcontractor employees; significant labor standards violations, as defined in 29 CFR 5.7; disputes concerning labor standards pursuant to 29 CFR Parts 4, 6, and 8 and as defined in FAR 52.222-14; disputed labor standards determinations; DOL investigations; or legal or judicial proceedings related to the labor standards under this Contract, a subcontract, or subrecipient award.

(10) preparing and submitting to the Contracting Officer, the Office of Management and Budget Control Number 1910-5165, Davis Bacon Semi-Annual Labor Compliance Report, by April 21 and October 21 of each year. Form submittal will be administered through the iBenefits system (<https://doeibenefits2.energy.gov>), its successor system, or other manner of compliance as directed by the Contracting Officer.

Recipients of funding under this FOA will also be required to undergo Davis-Bacon Act compliance training and to maintain competency in Davis-Bacon Act compliance. The Contracting Officer will notify the recipient of any DOE sponsored Davis-Bacon Act compliance trainings. The DOL offers free Prevailing Wage Seminars several times a year that meet this requirement, at <https://www.dol.gov/agencies/whd/government-contracts/construction/seminars/events>.

For additional guidance on how to comply with the Davis-Bacon provisions and clauses, see <https://www.dol.gov/agencies/whd/government-contracts/construction> and <https://www.dol.gov/agencies/whd/government-contracts/protections-for-workers-in-construction>.



**ix. Lobbying**

Recipients and subrecipients may not use any federal funds to influence or attempt to influence, directly or indirectly, congressional action on any legislative or appropriation matters.

Recipients and subrecipients are required to complete and submit SF-LLL, "Disclosure of Lobbying Activities" (<https://www.grants.gov/web/grants/forms/sf-424-individual-family.html>) to ensure that non-federal funds have not been paid and will not be paid to any person for influencing or attempting to influence any of the following in connection with the application:

- An officer or employee of any federal agency;
- A Member of Congress;
- An officer or employee of Congress; or
- An employee of a Member of Congress.

**x. Risk Assessment**

Pursuant to 2 CFR 200.206, DOE will conduct an additional review of the risk posed by applications submitted under this FOA. Such risk assessment will consider:

1. Financial stability;
2. Quality of management systems and ability to meet the management standards prescribed in 2 CFR 200 as amended and adopted by 2 CFR 910;
3. History of performance;
4. Audit reports and findings; and
5. The applicant's ability to effectively implement statutory, regulatory, or other requirements imposed on non-federal entities.

DOE may make use of other publicly available information and the history of an applicant's performance under DOE or other federal agency awards.

Depending on the severity of the findings and whether the findings were resolved, DOE may elect not to fund the applicant.

In addition to this review, DOE must comply with the guidelines on government-wide suspension and debarment in 2 CFR Part 180 and must require non-federal entities to comply with these provisions. These provisions restrict federal awards, subawards and contracts with certain parties that are debarred, suspended or otherwise excluded from or ineligible for participation in federal programs or activities.

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Further, as DOE invests in critical infrastructure and funds critical and emerging technology areas, DOE also considers possible vectors of undue foreign influence in evaluating risk. If high risks are identified and cannot be sufficiently mitigated, DOE may elect to not fund the applicant.

**xi. Invoice Review and Approval**

DOE employs a risk-based approach to determine the level of supporting documentation required for approving invoice payments. Recipients may be required to provide some or all of the following items with their requests for reimbursement:

- Summary of costs by cost categories;
- Timesheets or personnel hours report;
- Proof of compliance with Davis-Bacon and electronic submittals of certified payroll reports;
- Invoices/receipts for all travel, equipment, supplies, contractual, and other costs;
- UCC filing proof for equipment acquired with project funds by for-profit recipients and subrecipients;
- Explanation of cost match for invoicing period;
- Analogous information for some subrecipients; and
- Other items as required by DOE.

**xii. Prohibition related to Foreign Government-Sponsored Talent Recruitment Programs**

**a. Prohibition**

Persons participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk* are prohibited from participating in projects selected for federal funding under this FOA. Should an award result from this FOA, the recipient must exercise ongoing due diligence to reasonably ensure that no individuals participating on the DOE-funded project are participating in a *Foreign Government-Sponsored Talent Recruitment Program of a Foreign Country of Risk*. Consequences for violations of this prohibition will be determined according to applicable law, regulations, and policy. Further, the recipient must notify DOE within five (5) business days upon learning that an individual on the project team is or is believed to be participating in a foreign government talent recruitment program of a foreign country of risk. DOE may modify and add requirements related to this prohibition to the extent required by law.



## **b. Definitions**

- 1. Foreign Government-Sponsored Talent Recruitment Program.** An effort directly or indirectly organized, managed, or funded by a foreign government, or a foreign government instrumentality or entity, to recruit science and technology professionals or students (regardless of citizenship or national origin, or whether having a full-time or part-time position). Some foreign government-sponsored talent recruitment programs operate with the intent to import or otherwise acquire from abroad, sometimes through illicit means, proprietary technology or software, unpublished data and methods, and intellectual property to further the military modernization goals and/or economic goals of a foreign government. Many, but not all, programs aim to incentivize the targeted individual to relocate physically to the foreign state for the above purpose. Some programs allow for or encourage continued employment at United States research facilities or receipt of federal research funds while concurrently working at and/or receiving compensation from a foreign institution, and some direct participants not to disclose their participation to U.S. entities. Compensation could take many forms including cash, research funding, complimentary foreign travel, honorific titles, career advancement opportunities, promised future compensation, or other types of remuneration or consideration, including in-kind compensation.
- 2. Foreign Country of Risk.** DOE has designated the following countries as foreign countries of risk: Iran, North Korea, Russia, and China. This list is subject to change.

## **xiii. Affirmative Action and Pay Transparency Requirements**

All federally assisted construction contracts exceeding \$10,000 annually will be subject to the requirements of Executive Order 11246:

- (1) Recipients are prohibited from discriminating in employment decisions on the basis of race, color, religion, sex, sexual orientation, gender identity or national origin.
- (2) Recipients must take affirmative action to ensure that equal opportunity is provided in all aspects of their employment. This includes flowing down the appropriate language to all subrecipients and contractors.
- (3) Recipients are prohibited from taking adverse employment actions against applicants and employees for asking about, discussing, or sharing information about their pay or, under certain circumstances, the pay of their co-workers.



The Department of Labor's (DOL) Office of Federal Contractor Compliance Programs (OFCCP) uses a neutral process to schedule compliance evaluations. OFCCP's Technical Assistance Guide<sup>33</sup> should be consulted to gain an understanding of the requirements and possible required actions.

**xiv. Foreign Collaboration Considerations**

- a. Consideration of new collaborations with foreign organizations and governments. The recipient will be required to provide DOE with advanced written notification of any potential collaboration with foreign organizations or governments in connection with its DOE-funded award scope. The recipient will then be required to await further guidance from DOE prior to contacting the proposed foreign organization or government regarding the potential collaboration or negotiating the terms of any potential agreement.
- b. Existing collaborations with foreign organizations and governments. The recipient will be required to provide DOE with a written list of all existing foreign collaborations in which has entered in connection with its DOE-funded award scope.
- c. Description of collaborations that should be reported: In general, a collaboration will involve some provision of a thing of value to, or from, the recipient. A thing of value includes but may not be limited to all resources made available to, or from, the recipient in support of and/or related to the DOE award, regardless of whether or not they have monetary value. Things of value also may include in-kind contributions (such as office/laboratory space, data, equipment, supplies, employees, students). In-kind contributions not intended for direct use on the DOE award but resulting in provision of a thing of value from or to the DOE award must also be reported. Collaborations do not include routine workshops, conferences, use of the recipient's services and facilities by foreign investigators resulting from its standard published process for evaluating requests for access, or the routine use of foreign facilities by awardee staff in accordance with the recipient's standard policies and procedures.

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<sup>33</sup> See OFCCP's Technical Assistance Guide at:

<https://www.dol.gov/sites/dolgov/files/ofccp/Construction/files/ConstructionTAG.pdf?msclkid=9e397d68c4b111ec9d8e6fecb6c710ec> Also see the National Policy Assurances <http://www.nsf.gov/awards/managing/rtc.jsp>

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## V. Application Review Information

### A. Technical Review Criteria

#### i. Full Applications

Applications will be evaluated against the technical review criteria shown below. All sub-criteria are of equal weight.

#### **Criterion 1: Technical Merit, Innovation, and Impact (40%)**

This criterion involves consideration of the following factors:

- Effectiveness of the proposed organizational plan for achieving Program goals, objectives, and responsibilities.
- Extent to which the proposed project has identified and addressed gaps in services to advance the state's manufacturing sector and improve competitiveness of the manufacturing base, as shown through the applicant's thoroughness in the approach.
- Degree to which the task descriptions are clear, detailed timely, and reasonable, resulting in a high likelihood that the proposed project scope will succeed in meeting the project goals.
- The potential impact the project contributes to job and economic growth within the state and by individual SMMs.
- Degree to which the project would strengthen the competitiveness of domestic manufacturing and translate into increased long-term manufacturing and employment in the United States and contribute to the BIL goals.
- Degree and effectiveness to which the proposed plan includes a statewide engagement of small- and medium-sized manufacturers – as well as with key local, regional, statewide, and national resources – to appropriately design a plan for meeting their needs and engage them in implementation of the project.
- Degree to which applicant thoroughly describes the types of agreements the applicant will pursue with manufacturing resource providers, workforce development programs, community organizations, and/or Labor organizations.
- Degree to which applicant leverages existing resources, including local, regional, statewide, national resources, or academic, and private sector partners with demonstrated expertise in smart manufacturing technologies and technical assistance for deploying them.

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- The level of participation by project participants as evidenced by letter(s) of commitment and how well they are integrated into the project plan.
- The level of industry involvement and demonstrated ability to accelerate the deployment of smart manufacturing technologies by small- and medium- manufacturers as result of this program.

### **Criterion 2: Project Workplan (30%)**

This criterion involves consideration of the following factors:

- Demonstrated ability to identify and address gaps in services as shown through the applicant's approach to determining how best to deploy federal funding and utilize partners – including academic and private sector partners – to engage.
- Degree to which the applicant clearly articulates task descriptions, and that they are detailed, timely, and reasonable, resulting in a high likelihood that the proposed Workplan and SOPO will succeed in meeting the project goals.
- The level of clarity in the definition of the baseline, metrics, and milestones.
- Degree to which the implementation plan for the proposed work correlates to the project timeline, deliverables and milestones.
- Comprehensiveness of plan for expanding services to SMMs including, but not limited to, the scope of resources to be utilized, implementation timeline, facilities and infrastructure requirements, and services distribution.
- Identification of the interest and extent of industry adoption of the technologies and process.

### **Criterion 3: Community Benefits Plan (20%)**

This criterion involves consideration of the following factors:

- Extent to which the applicant demonstrates community and labor engagement to date that results in support for the proposed project.
- Extent to which the applicant has a clear and appropriately robust plan to engage – ideally through a clear commitment to negotiate enforceable Workforce and Community Agreements with labor unions, Tribal entities, and community-based organizations that support or work with disadvantaged communities and other affected stakeholders.
- Extent to which the applicant demonstrates that community and labor engagement will lead to the delivery of high-quality jobs, minimal

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environmental impact, and allocation of project benefits to disadvantaged communities.

Job Quality and Workforce Continuity

- Quality and manner in which the proposed project will create and/or retain high quality, good-paying jobs with employer-sponsored benefits for all classifications and phases of work.
- Extent to which applicant demonstrates that the involved SMMs are responsible employers, with ready access to a sufficient supply of appropriately skilled labor, and an effective plan to minimize the risk of labor disputes or disruptions.

Diversity, Equity, Inclusion, and Accessibility

- Extent to which the Community Benefits Plan includes specific and high-quality actions to meet DEIA goals, which may include DEIA recruitment procedures; supplier diversity plans, and other DEIA initiatives.
- Quality of any partnerships and agreements with apprenticeship readiness programs, or community-based workforce training and support organizations serving workers facing systematic barriers to employment to facilitate participation in the project's construction and operations.

Justice40 Initiative

- Extent to which the Community Benefits Plan identifies specific, measurable benefits for disadvantaged communities, how the benefits will flow to disadvantaged communities, and how negative environmental impacts affecting disadvantaged communities would be mitigated.
- Extent to which the project would contribute to meeting the objective that 40% of the benefits of climate and clean energy investments flow to disadvantaged communities.

**Criterion 4: Project Team and Resources (10%)**

This criterion involves consideration of the following factors:

- Qualifications of proposed project team including past experience in fostering program partnerships with public and private entities and implementing programs to support SMMs.
- Adequateness of the facilities and resources that will be used to implement the project and fulfill the goals of the Program.
- The reasonableness of the budget and spend plan for the proposed project and objectives, extent of alternative funding sources for the project, and potential to sustain a project beyond federal funding.

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- The capability of the Project Manager(s) and the proposed team to address all aspects of the proposed work with a high probability of success. The qualifications, relevant expertise, and time commitment of the individuals on the team.

**ii. Criteria for Replies to Reviewer Comments**

DOE has not established separate criteria to evaluate Replies to Reviewer Comments. Instead, Replies to Reviewer Comments are attached to the original applications and evaluated as a clarification of the Full Application.

**B. Standards for Application Evaluation**

Applications that are determined to be eligible will be evaluated in accordance with this FOA and the guidance provided in the “DOE Merit Review Guide for Financial Assistance,” effective September 2020, which is available at:

<https://energy.gov/management/downloads/merit-review-guide-financial-assistance-and-unsolicited-proposals-current>.

**C. Other Selection Factors**

**i. Program Policy Factors**

In addition to the above criteria, the Selection Official may consider the following program policy factors in determining which Full Applications to select for award negotiations:

- The degree to which the proposed project exhibits technical diversity when compared to the existing DOE project portfolio and other projects selected from the subject FOA.
- The degree to which the proposed project, including proposed cost match and when compared to the existing DOE project portfolio and other projects to be selected from the subject FOA, optimizes the use of available DOE funding to achieve programmatic objectives.
- The degree to which the project application advances efforts to build a clean and equitable energy economy that achieves a zero-carbon electricity system by 2035, and to put the United States on a path to achieve net-zero emissions economy-wide by no later than 2050.
- The degree to which the proposed project is likely to lead to increased high-quality employment and manufacturing in the United States.
- The degree to which the proposed project will accelerate transformational technological advances in areas that industry by itself is not likely to undertake because of technical and financial uncertainty; The degree to

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which the proposed project, or group of projects, represent a desired geographic distribution (considering past awards and current applications).

- The degree to which the proposed project incorporates applicant or team members from Minority Serving Institutions (e.g., Historically Black Colleges and Universities (HBCUs)/Other Minority Serving Institutions); and partnerships with Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses, Veteran Owned Businesses, or Tribal Nations.
- The degree to which the proposed project, when compared to the existing DOE project portfolio and other projects to be selected from the subject FOA, contributes to the total portfolio meeting the goals reflected in the Community Benefits Plan criteria.
- The degree to which the proposed project will employ procurement of U.S. iron, steel, manufactured products, and construction materials.

## **D. Evaluation and Selection Process**

### **i. Overview**

The evaluation process consists of multiple phases; each includes an initial eligibility review and a thorough technical review. Rigorous technical reviews of eligible submissions are conducted by reviewers that are experts in the subject matter of the FOA. Ultimately, the Selection Official considers the recommendations of the reviewers, along with other considerations such as program policy factors, in determining which applications to select.

### **ii. Pre-Selection Interviews**

As part of the evaluation and selection process, DOE may invite one or more applicants to participate in pre-selection interviews. Pre-selection interviews are distinct from and more formal than pre-selection clarifications (See Section V.D.iii. of the FOA). The invited applicant(s) will meet with DOE representatives to provide clarification on the contents of the Full Applications and to provide DOE an opportunity to ask questions regarding the proposed project. The information provided by applicants to DOE through pre-selection interviews contributes to DOE's selection decisions.

DOE will arrange to meet with the invited applicants in person at DOE's offices or a mutually agreed upon location. DOE may also arrange site visits at certain applicants' facilities. In the alternative, DOE may invite certain applicants to participate in a one-on-one conference with DOE via webinar, videoconference, or conference call.

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DOE will not reimburse applicants for travel and other expenses relating to the pre-selection interviews, nor will these costs be eligible for reimbursement as pre-award costs.

Participation in pre-selection interviews with DOE does not signify that applicants have been selected for award negotiations.

**iii. Pre-Selection Clarification**

DOE may determine that pre-selection clarifications are necessary from one or more applicants. Pre-selection clarifications are distinct from and less formal than pre-selection interviews. These pre-selection clarifications will solely be for the purposes of clarifying the application. The pre-selection clarifications may occur before, during or after the merit review evaluation process. Information provided by an applicant that is not necessary to address the pre-selection clarification question will not be reviewed or considered. Typically, a pre-selection clarification will be carried out through either written response to DOE's written clarification questions or video or conference calls with DOE representatives.

The information provided by applicants to DOE through pre-selection clarifications is incorporated in their applications and contributes to the merit review evaluation and DOE's selection decisions. If DOE contacts an applicant for pre-selection clarification purposes, it does not signify that the applicant has been selected for negotiation of award or that the applicant is among the top ranked applications.

DOE will not reimburse applicants for expenses relating to the pre-selection clarifications, nor will these costs be eligible for reimbursement as pre-award costs.

**iv. Recipient Integrity and Performance Matters**

DOE, prior to making a federal award with a total amount of federal share greater than the simplified acquisition threshold, is required to review and consider any information about the applicant that is in the designated integrity and performance system accessible through SAM (currently the [Federal Awardee Performance and Integrity Information System \(FAPIS\)](#)) (see 41 U.S.C. § 2313).

The applicant, at its option, may review information in the designated integrity and performance systems accessible through SAM and comment on any information about itself that a federal awarding agency previously entered and is currently in the designated integrity and performance system accessible through SAM.



DOE will consider any written comments by the applicant, in addition to the other information in the designated integrity and performance system, in making a judgment about the applicant's integrity, business ethics, and record of performance under federal awards when completing the review of risk posed by applicants as described in 2 CFR 200.206.

**v. Selection**

The Selection Official may consider the technical merit, the Federal Consensus Board's recommendations, program policy factors, and the amount of funds available in arriving at selections for this FOA.

**E. Anticipated Notice of Selection and Award Negotiation Dates**

MESC anticipates notifying applicants selected for negotiation of award and negotiating awards by the dates provided on the cover page of this FOA.

## **VI. Award Administration Information**

**A. Award Notices**

**i. Ineligible Submissions**

Ineligible Full Applications will not be further reviewed or considered for award. The Contracting Officer will send a notification letter by email to the technical and administrative points of contact designated by the applicant in Clean Energy Infrastructure Exchange. The notification letter will state the basis upon which the Full Application is ineligible and not considered for further review.

**ii. Full Application Notifications**

DOE will notify applicants of its determination via a notification letter by email to the technical and administrative points of contact designated by the applicant in Clean Energy Infrastructure Exchange. The notification letter will inform the applicant whether or not its Full Application was selected for award negotiations. Alternatively, DOE may notify one or more applicants that a final selection determination on particular Full Applications will be made at a later date, subject to the availability of funds or other factors.

**iii. Successful Applicants**

Receipt of a notification letter selecting a Full Application for award negotiations does not authorize the applicant to commence performance of the project. If an application is selected for award negotiations, it is not a commitment by DOE to issue an award. Applicants do not receive an award until award negotiations are

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complete and the Contracting Officer executes the funding agreement, accessible by the prime recipient in FedConnect.

The award negotiation process will take approximately 60 days. Applicants must designate a primary and a backup point-of-contact in Clean Energy Infrastructure Exchange with whom DOE will communicate to conduct award negotiations. The applicant must be responsive during award negotiations (i.e., provide requested documentation) and meet the negotiation deadlines. If the applicant fails to do so or if award negotiations are otherwise unsuccessful, DOE will cancel the award negotiations and rescind the Selection. DOE reserves the right to terminate award negotiations at any time for any reason.

Please refer to Section IV.I.ii. of the FOA for guidance on pre-award costs.

#### **iv. Alternate Selection Determinations**

In some instances, an applicant may receive a notification that its application was not selected for award and DOE designated the application to be an alternate. As an alternate, DOE may consider the Full Application for federal funding in the future. A notification letter stating the Full Application is designated as an alternate does not authorize the applicant to commence performance of the project. DOE may ultimately determine to select or not select the Full Application for award negotiations.

#### **v. Unsuccessful Applicants**

DOE shall promptly notify in writing each applicant whose application has not been selected for award or whose application cannot be funded because of the unavailability of appropriated funds.

### **B. Administrative and National Policy Requirements**

#### **i. Registration Requirements**

There are several one-time actions before submitting an application in response to this FOA, and it is vital that applicants address these items as soon as possible. Some may take several weeks, and failure to complete them could interfere with an applicant's ability to apply to this FOA, or to meet the negotiation deadlines and receive an award if the application is selected. These requirements are as follows:

##### **1. Clean Energy Infrastructure Exchange**

Register and create an account in the Clean Energy Infrastructure Exchange at <https://infrastructure-exchange.energy.gov/>, MESC's online application portal. This account will then allow the user to register for any open Clean Energy Infrastructure FOAs that are currently in the Clean Energy

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Infrastructure Exchange. It is recommended that each organization or business unit, whether acting as a team or a single entity, use only one account as the contact point for each submission. Applicants should also designate backup points of contact so they may be easily contacted if deemed necessary. **This step is required to apply to the FOA.**

The Clean Energy Infrastructure Exchange registration does not have a delay; however, **the remaining registration requirements below could take several weeks to process and are necessary for a potential applicant to receive an award under this FOA.**

**2. System for Award Management**

Register with the SAM at <https://www.sam.gov>. Designating an Electronic Business Point of Contact (EBiz POC) and obtaining a special password called a Marketing Partner ID Number (MPIN) are important steps in SAM registration. Please update your SAM registration annually.

**3. FedConnect**

Register in FedConnect at <https://www.fedconnect.net>. To create an organization account, your organization's SAM MPIN is required. For more information about the SAM MPIN or other registration requirements, review the FedConnect Ready, Set, Go! Guide at [https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect\\_Ready\\_Set\\_Go.pdf](https://www.fedconnect.net/FedConnect/Marketing/Documents/FedConnect_Ready_Set_Go.pdf).

**4. Grants.gov**

Register in Grants.gov (<http://www.grants.gov>) to receive automatic updates when Amendments to this FOA are posted. However, please note that Full Applications will not be accepted through Grants.gov.

**5. Electronic Authorization of Applications and Award Documents**

Submission of an application and supplemental information under this FOA through electronic systems used by the DOE, including Clean Energy Infrastructure Exchange and FedConnect.net, constitutes the authorized representative's approval and electronic signature.

**ii. Award Administrative Requirements**

The administrative requirements for DOE grants and cooperative agreements are contained in 2 CFR Part 200 as amended by 2 CFR Part 910.

**iii. Foreign National Participation (September 2021)**

All applicants selected for an award under this FOA and project participants (including subrecipients and contractors) who anticipate involving foreign

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nationals in the performance of an award, may be required to provide DOE with specific information about each foreign national to satisfy requirements for foreign national participation. A “foreign national” is defined as any person who is not a United States citizen by birth or naturalization. The volume and type of information collected may depend on various factors associated with the award. DOE concurrence may be required before a foreign national can participate in the performance of any work under an award.

Approval for foreign nationals from countries identified on the U.S. Department of State’s list of State Sponsors of Terrorism must be obtained from DOE before they can participate in the performance of any work under an award.

**iv. Subaward and Executive Reporting**

Additional administrative requirements necessary for DOE grants and cooperative agreements to comply with the Federal Funding and Transparency Act of 2006 (FFATA) are contained in 2 CFR Part 170. Prime recipients must register with the new FFATA Subaward Reporting System database and report the required data on their first tier subrecipients. Prime recipients must report the executive compensation for their own executives as part of their registration profile in SAM.

**v. National Policy Requirements**

The National Policy Assurances that are incorporated as a term and condition of award are located at: <http://www.nsf.gov/awards/managing/rtc.jsp>.

**vi. Environmental Review in Accordance with National Environmental Policy Act (NEPA)**

DOE’s decision whether and how to distribute federal funds under this FOA is subject to NEPA (42 U.S.C. § 4321, *et seq.*). NEPA requires federal agencies to integrate environmental values into their decision-making processes by considering the potential environmental impacts of their proposed actions. For additional background on NEPA, please see DOE’s NEPA website, at <https://www.energy.gov/nepa>.

While NEPA compliance is a federal agency responsibility and the ultimate decisions remain with the federal agency, all recipients selected for an award will be required to assist in the timely and effective completion of the NEPA process in the manner most pertinent to their proposed project. If DOE determines certain records must be prepared to complete the NEPA review process (e.g., biological evaluations or environmental assessments), the recipient may be required to prepare the records and the costs to prepare the necessary records may be included as part of the project costs.



## **vii. Applicant Representations and Certifications**

### **1. Lobbying Restrictions**

By accepting funds under this award, the prime recipient agrees that none of the funds obligated on the award shall be expended, directly or indirectly, to influence Congressional action on any legislation or appropriation matters pending before Congress, other than to communicate to Members of Congress as described in 18 U.S.C. § 1913. This restriction is in addition to those prescribed elsewhere in statute and regulation.

### **2. Corporate Felony Conviction and Federal Tax Liability Representations**

In submitting an application in response to this FOA, the applicant represents that:

- a.** It is **not** a corporation that has been convicted of a felony criminal violation under any federal law within the preceding 24 months; and
- b.** It is **not** a corporation that has any unpaid federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

For purposes of these representations the following definitions apply:

A Corporation includes any entity that has filed articles of incorporation in any of the 50 states, the District of Columbia, or the various territories of the United States [but not foreign corporations]. It includes both for-profit and non-profit organizations.

### **3. Nondisclosure and Confidentiality Agreements Representations**

In submitting an application in response to this FOA the applicant represents that:

- a.** It **does not and will not** require its employees or contractors to sign internal nondisclosure or confidentiality agreements or statements prohibiting or otherwise restricting its employees or contractors from lawfully reporting waste, fraud, or abuse to a designated investigative or law enforcement representative of a federal department or agency authorized to receive such information.

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- b. It **does not and will not** use any federal funds to implement or enforce any nondisclosure and/or confidentiality policy, form, or agreement it uses unless it contains the following provisions:

(1) *“These provisions are consistent with and do not supersede, conflict with, or otherwise alter the employee obligations, rights, or liabilities created by existing statute or Executive Order relating to (1) classified information, (2) communications to Congress, (3) the reporting to an Inspector General of a violation of any law, rule, or regulation, or mismanagement, a gross waste of funds, an abuse of authority, or a substantial and specific danger to public health or safety, or (4) any other whistleblower protection. The definitions, requirements, obligations, rights, sanctions, and liabilities created by controlling Executive Orders and statutory provisions are incorporated into this agreement and are controlling.”*

(2) The limitation above shall not contravene requirements applicable to Standard Form 312 Classified Information Nondisclosure Agreement (<https://fas.org/sgp/othergov/sf312.pdf>), Form 4414 Sensitive Compartmented Information Disclosure Agreement (<https://fas.org/sgp/othergov/intel/sf4414.pdf>), or any other form issued by a federal department or agency governing the nondisclosure of classified information.

(3) Notwithstanding the provision listed in paragraph (a), a nondisclosure or confidentiality policy form or agreement that is to be executed by a person connected with the conduct of an intelligence or intelligence-related activity, other than an employee or officer of the United States government, may contain provisions appropriate to the particular activity for which such document is to be used. Such form or agreement shall, at a minimum, require that the person will not disclose any classified information received in the course of such activity unless specifically authorized to do so by the United States government. Such nondisclosure or confidentiality forms shall also make it clear that they do not bar disclosures to Congress, or to an authorized official of an executive agency or the Department of Justice, that are essential to reporting a substantial violation of law.

#### **viii. Statement of Federal Stewardship**

DOE will exercise normal federal stewardship in overseeing the project activities performed under DOE awards. Stewardship Activities include, but are not limited to, conducting site visits; reviewing performance and financial reports; providing assistance and/or temporary intervention in unusual circumstances to correct

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deficiencies that develop during the project; assuring compliance with terms and conditions; and reviewing technical performance after project completion to ensure that the project objectives have been accomplished.

**ix. Statement of Substantial Involvement**

MESC has substantial involvement in work performed under awards made as a result of this FOA. MESC does not limit its involvement to the administrative requirements of the award. Instead, MESC has substantial involvement in the direction and redirection of the technical aspects of the project as a whole. Substantial involvement includes, but is not limited to, the following:

1. MESC shares responsibility with the recipient for the management, control, direction, and performance of the project.
2. MESC may intervene in the conduct or performance of work under this award for programmatic reasons. Intervention includes the interruption or modification of the conduct or performance of project activities.
3. MESC may redirect or discontinue funding the project based on the outcome of MESC's evaluation of the project at the Go/No-Go decision point(s).
4. MESC participates in major project decision-making processes.

**x. Intellectual Property Provisions**

The standard DOE financial assistance intellectual property provisions applicable to the various types of recipients are located at <http://energy.gov/gc/standard-intellectual-property-ip-provisions-financial-assistance-awards>. DOE anticipates that awards resulting from this FOA will not involve research and development.

**xi. Reporting**

Reporting requirements are identified on the Federal Assistance Reporting Checklist, attached to the award agreement.

Additional reporting requirements apply to projects funded by BIL. As part of tracking progress toward key departmental goals – ensuring justice and equity, investing in the American workforce, boosting domestic manufacturing, reducing greenhouse gas emissions, and advancing a pathway to private sector deployment – DOE may require specific data collection. Examples of data that may be collected include:

- New manufacturing production or recycling capacity
- Jobs data including
  - Number and types of jobs provided, wages and benefits paid
  - Demographics of workforce including local hires
  - Efforts to minimize risks of labor disputes and disruptions

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- Contributions to training, certificates and training credentials received by employers; ration of apprentice-to-journey level workers employed
- Justice and Equity data, including:
  - Minority Business Enterprises, Minority Owned Businesses, Woman Owned Businesses and Veteran Owned Businesses acting as vendors and sub-contractors for bids on supplies, services and equipment.
  - Value, number, and type of partnerships with MSIs
  - Stakeholder engagement events, consent-based siting activities
  - Other relevant indicators from the Community Benefits Plan.
- Number and type of energy efficient and clean energy equipment installed
- Funding leveraged, follow-on-funding, Intellectual Property (IP) Generation and IP Utilization

## **xii. Go/No-Go Review**

Each project selected under this FOA will be subject to a periodic project evaluation referred to as a Go/No-Go Review. A Go/No-Go Review is a risk management tool and a project management best practice to ensure that, for the current phase or period of performance, technical success is definitively achieved and potential for success in future phases or periods of performance is evaluated, prior to actually beginning the execution of future phases. At the Go/No-Go decision points, DOE will evaluate project performance, project schedule adherence, the extent milestone objectives are met, compliance with reporting requirements, and overall contribution to the program goals and objectives. Federal funding beyond the Go/No-Go decision point (continuation funding) is contingent upon (1) availability of federal funds appropriated by Congress for the purpose of this program; (2) the availability of future-year budget authority; (3) recipient's technical progress compared to the Milestone Summary Table stated in Attachment 1 of the award; (4) recipient's submittal of required reports; (5) recipient's compliance with the terms and conditions of the award; (6) DOE's Go/No-Go decision; (7) the recipient's submission of a continuation application;<sup>34</sup>

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<sup>34</sup> A continuation application is a non-competitive application for an additional budget period within a previously approved project period. At least ninety (90) days before the end of each budget period, the recipient must submit its continuation application, which includes the following information:

- i. A progress report on the project objectives, including significant findings, conclusions, or developments, and an estimate of any unobligated balances remaining at the end of the budget period. If the remaining unobligated balance is estimated to exceed 20 percent of the funds available for the budget period, explain why the excess funds have not been obligated and how they will be used in the next budget period.
- ii. A detailed budget and supporting justification if there are changes to the negotiated budget, or a budget for the upcoming budget period was not approved at the time of award.



and (8) written approval of the continuation application by the Contracting Officer.

As a result of the Go/No-Go Review, DOE may, at its discretion, authorize the following actions: (1) continue to fund the project, contingent upon the availability of funds appropriated by Congress for the purpose of this program and the availability of future-year budget authority; (2) recommend redirection of work under the project; (3) place a hold on federal funding for the project, pending further supporting data or funding; or (4) discontinue funding the project because of insufficient progress, change in strategic direction, or lack of funding.

The Go/No-Go decision is distinct from a non-compliance determination. In the event a recipient fails to comply with the requirements of an award, DOE may take appropriate action, including but not limited to, redirecting, suspending or terminating the award.

**xiii. Conference Spending**

The recipient shall not expend any funds on a conference not directly and programmatically related to the purpose for which the grant or cooperative agreement was awarded that would defray the cost to the United States government of a conference held by any Executive branch department, agency, board, commission, or office for which the cost to the United States government would otherwise exceed \$20,000, thereby circumventing the required notification by the head of any such Executive Branch department, agency, board, commission, or office to the Inspector General (or senior ethics official for any entity without an Inspector General), of the date, location, and number of employees attending such conference.

**xiv. Uniform Commercial Code (UCC) Financing Statements**

Per 2 CFR 910.360 (Real Property and Equipment) when a piece of equipment is purchased by a for-profit recipient or subrecipient with federal funds, and when the federal share of the financial assistance agreement is more than \$1,000,000, the recipient or subrecipient must:

Properly record, and consent to the Department's ability to properly record if the recipient fails to do so, UCC financing statement(s) for all equipment in excess of \$5,000 purchased with project funds. These financing statement(s) must be approved in writing by the Contracting Officer prior to the recording, and they shall provide notice that the recipient's title to all equipment (not real property) purchased with federal funds under the financial assistance agreement is

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iii. A description of any planned changes from the SOPO and/or Milestone Summary Table.

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conditional pursuant to the terms of this section, and that the government retains an undivided reversionary interest in the equipment. The UCC financing statement(s) must be filed before the Contracting Officer may reimburse the recipient for the federal share of the equipment unless otherwise provided for in the relevant financial assistance agreement. The recipient shall further make any amendments to the financing statements or additional recordings, including appropriate continuation statements, as necessary or as the Contracting Officer may direct.

**xv. Implementation of Executive Order 13798, Promoting Free Speech and Religious Liberty**

States, local governments, or other public entities may not condition sub-awards in a manner that would discriminate, or disadvantage sub-recipients based on their religious character.

**xvi. Participants and Collaborating Organizations**

If selected for award negotiations, the selected applicant must submit a list of personnel who are proposed to work on the project, both at the recipient and subrecipient level and a list of proposed collaborating organizations prior to award. Recipients will have an ongoing responsibility to notify DOE of changes to the personnel and collaborating organizations and submit updated information during the life of the award.

**xvii. Current and Pending Support**

If selected for award negotiations, within 30 days of the selection notice, the selectee must submit 1) current and pending support disclosures and resumes for any new PIs or senior/key personnel, and 2) updated disclosures if there have been any changes to the current and pending support submitted with the application. Throughout the life of the award, the recipient has an ongoing responsibility to submit 1) current and pending support disclosure statements and resumes for any new PI and senior/key personnel, and 2) updated disclosures if there are changes to the current and pending support previously submitted to DOE. Also See Section IV.C.xv.

**xviii. Interim Conflict of Interest Policy for Financial Assistance**

The DOE interim Conflict of Interest Policy for Financial Assistance (COI Policy)<sup>35</sup> is applicable to all non-Federal entities applying for, or that receive, DOE funding by means of a financial assistance award (e.g., a grant, cooperative agreement, or technology investment agreement) and, through the implementation of this policy by the entity, to each Investigator who is planning to participate in, or is

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<sup>35</sup> DOE's interim COI Policy can be found at [PF 2022-17 FAL 2022-02 Department of Energy Interim Conflict of Interest Policy Requirements for Financial Assistance](#).

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participating in, the project funded wholly or in part under the DOE financial assistance award. The term “Investigator” means the PI and any other person, regardless of title or position, who is responsible for the purpose, design, conduct, or reporting of a project funded by DOE or proposed for funding by DOE. Recipients must flow down the requirements of the interim COI Policy to any subrecipient non-federal entities. Further, for DOE funded projects, the recipient must include all financial conflicts of interest (FCOI) (i.e., managed and unmanaged/ unmanageable) in their initial and ongoing FCOI reports.

It is understood that non-federal entities and individuals receiving DOE financial assistance awards will need sufficient time to come into full compliance with DOE’s interim COI Policy. To provide some flexibility, DOE allows for a staggered implementation. Specifically, prior to award, applicants selected for award negotiations must: ensure all Investigators complete their significant financial disclosures; review the disclosures; determine whether a FCOI exists; develop and implement a management plan for FCOIs; and provide DOE with an initial FCOI report that includes all FCOIs (i.e., managed and unmanaged/ unmanageable). Recipients will have 180 days from the date of the award to come into full compliance with the other requirements set forth in DOE’s interim COI Policy. Prior to award, the applicant must certify that it is, or will be within 180 days of the award, compliant with all requirements in the COI Policy.

**xix. Fraud, Waste and Abuse**

The mission of the DOE Office of Inspector General (OIG) is to strengthen the integrity, economy and efficiency of the Department’s programs and operations including deterring and detecting fraud, waste, abuse and mismanagement. The OIG accomplishes this mission primarily through investigations, audits, and inspections of DOE activities to include grants, cooperative agreements, loans, and contracts.

The OIG maintains a Hotline for reporting allegations of fraud, waste, abuse, or mismanagement. To report such allegations, please visit <https://www.energy.gov/ig/ig-hotline>.

Additionally, recipients of DOE awards must be cognizant of the requirements of [2 CFR 200.113 Mandatory disclosures](#), which states:

The non-Federal entity or applicant for a Federal award must disclose, in a timely manner, in writing to the Federal awarding agency or pass-through entity all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting the Federal award. Non-Federal entities that have received a Federal award including the term and condition outlined in appendix XII of 2 CFR Part 200 are required to report certain civil,

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criminal, or administrative proceedings to SAM (currently FAPIIS). Failure to make required disclosures can result in any of the remedies described in [2 CFR 200.339](#). (See also [2 CFR part 180, 31 U.S.C. § 3321](#), and [41 U.S.C. § 2313](#).) [[85 FR 49539](#), Aug. 13, 2020]

Applicants and subrecipients (if applicable) are encouraged to allocate sufficient costs in the project budget to cover the costs associated for personnel and data infrastructure needs to support performance management and program evaluation needs including but not limited to independent program and project audits to mitigate risks for fraud, waste, and abuse.

**xx. Human Subjects Research**

Research involving human subjects, biospecimens, or identifiable private information conducted with DOE funding is subject to the requirements of DOE Order 443.1C, Protection of Human Research Subjects, 45 CFR Part 46, Protection of Human Subjects (subpart A which is referred to as the “Common Rule”), and 10 CFR Part 745, Protection of Human Subjects. Additional information on the DOE Human Subjects Research Program can be found at: [HUMAN SUBJECTS Human Subjects Pr... | U.S. DOE Office of Science \(SC\) \(osti.gov\)](#).

**xxi. Cybersecurity Plan**

In accordance with BIL section 40126, applicants selected for award negotiations must submit an acceptable cybersecurity plan to DOE prior to receiving funding.<sup>36</sup> These plans are intended to foster a cybersecurity-by-design approach for BIL efforts. The Department will also use these plans to ensure effective integration and coordination across its research, development, and demonstration programs. A cybersecurity plan is NOT required as part of the application submission for this FOA, but all projects selected under this FOA will be required to submit a cybersecurity plan during the award negotiation phase.

The Department recommends using open guidance and standards such as the National Institute of Standards and Technology's (NIST) Cybersecurity Framework (CSF), the Cybersecurity and Infrastructure Security Agency Cybersecurity Performance Goals (CPGs),<sup>37</sup> and the DOE Cybersecurity Capability Maturity Model (C2M2).<sup>38</sup> The cybersecurity plan created pursuant to BIL section 40126

<sup>36</sup> 42 U.S.C. § 18725

<sup>37</sup> Cross-Sector Cybersecurity Performance Goals | CISA, <https://www.cisa.gov/cross-sector-cybersecurity-performance-goals>

<sup>38</sup> NERC critical infrastructure protection (CIP) standards for entities responsible for the availability and reliability of the bulk electric system. NIST IR 7628: 2 Smart grid cyber security strategy and requirements. NIST SP800-53, Recommended Security Controls for Federal Information Systems and Organizations: Catalog of security controls in 18 categories, along with profiles for low-, moderate-, and high-impact systems. NIST SP800-82, Guide to Industrial



should document any deviation from open standards, as well as the utilization of proprietary standards where the awardee determines that such deviation is necessary.

- Cybersecurity plans should be commensurate to the threats and vulnerabilities associated with the proposed efforts and demonstrate the cybersecurity maturity of the project.
- Cybersecurity plans may cover a range of topics relevant to the proposed project, e.g., software development lifecycle, third-party risks, and incident reporting.
- At a minimum, cybersecurity plans should address questions noted in BIL section 40126 (b) “Contents of Cybersecurity Plan”.<sup>39</sup>

A draft version of supplementary guidance on the cybersecurity plan requirement will be available at <https://www.energy.gov/ceser/bipartisan-infrastructure-law-implementation>.

## **xxii. Real Property and Equipment**

Real property and equipment purchased with project funds (federal and recipient cost match) are subject to the requirements at 2 CFR 200.310, 200.311, 200.313, and 200.316 (non-Federal entities, except for-profit entities) and 2 CFR 910.360 (for-profit entities). For projects selected for award under this FOA, the recipient may (1) take disposition action on the real property and equipment; or (2) continue to use the real property and equipment after the conclusion of the award period of performance, with Contracting Officer approval.

The recipient’s written Request for Continued Use must identify the property and include: a summary of how the property will be used (must align with the authorized project purposes); a proposed use period, (e.g., perpetuity, until fully depreciated, or a calendar date where the recipient expects to submit disposition instructions); acknowledgement that the recipient shall not sell or encumber the property or permit any encumbrance without prior written DOE approval; current fair market value of the property; and an Estimated Useful Life or depreciation schedule for equipment.

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Control Systems (ICS) Security. NIST SP800-39, Integrated Enterprise-Wide Risk Management: Organization, mission, and information system view. AMI System Security Requirements: Security requirements for advanced metering infrastructure. ISO (International Organization for Standardization) 27001, Information Security Management Systems: Guidance on establishing governance and control over security activities (this document must be purchased). IEEE (Institute of Electrical and Electronics Engineers) 1686-2007, Standard for Substation Intelligent Electronic Devices (IEDs) Cyber Security Capabilities (this document must be purchased). DOE Cybersecurity Capability Maturity Model (C2M2).

<sup>39</sup> 42 U.S.C. § 18725

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When the property is no longer needed for authorized project purposes, the recipient must request disposition instructions from DOE. For-profit entity disposition requirements are set forth at 2 CFR 910.360. Property disposition requirements for other non-federal entities are set forth in 2 CFR 200.310-200.316.

## VII. Questions/Agency Contacts

Upon the issuance of a FOA, DOE personnel are prohibited from communicating (in writing or otherwise) with applicants regarding the FOA except through the established question and answer process as described below. Specifically, questions regarding this FOA must be submitted to [FOA2969@netl.doe.gov](mailto:FOA2969@netl.doe.gov).

Questions and comments concerning this FOA shall be submitted not later than 3 business days prior to the application due date. Please note, feedback on individual concepts will not be provided through Q&A.

All questions and answers related to this FOA will be posted on the Clean Energy Infrastructure Exchange at: <https://infrastructure-exchange.energy.gov/>. **Please note that you must first select this specific FOA Number in order to view the questions and answers specific to this FOA.** DOE will attempt to respond to a question within 3 business days unless a similar question and answer has already been posted on the website.

Questions relating to the registration process and use of the Clean Energy Infrastructure Exchange website should be submitted to: [InfrastructureExchangeSupport@hq.doe.gov](mailto:InfrastructureExchangeSupport@hq.doe.gov).

## VIII. Other Information

### A. FOA Modifications

Amendments to this FOA will be posted on the Clean Energy Infrastructure Exchange website and the Grants.gov system. However, you will only receive an email when an amendment or a FOA is posted on these sites if you register for email notifications for this FOA in Grants.gov. MESC recommends that you register as soon after the release of the FOA as possible to ensure you receive timely notice of any amendments or other FOAs.

### B. Government Right to Reject or Negotiate

DOE reserves the right, without qualification, to reject any or all applications received in response to this FOA and to select any application, in whole or in part, as a basis for negotiation and/or award.

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## C. Commitment of Public Funds

The Contracting Officer is the only individual who can make awards or commit the government to the expenditure of public funds. A commitment by anyone other than the Contracting Officer, either express or implied, is invalid.

## D. Treatment of Application Information

Applicants should not include business sensitive (e.g., commercial or financial information that is privileged or confidential), trade secrets, proprietary, or otherwise confidential information in their application unless such information is necessary to convey an understanding of the proposed project or to comply with a requirement in the FOA. Applicants are advised to not include any critically sensitive proprietary detail.

If an application includes business sensitive, trade secrets, proprietary, or otherwise confidential information, it is furnished to the federal government (government) in confidence with the understanding that the information shall be used or disclosed only for evaluation of the application. Such information will be withheld from public disclosure to the extent permitted by law, including the Freedom of Information Act. Without assuming any liability for inadvertent disclosure, DOE will seek to limit disclosure of such information to its employees and to outside reviewers when necessary for merit review of the application or as otherwise authorized by law. This restriction does not limit the government's right to use the information if it is obtained from another source.

If an applicant chooses to submit business sensitive, trade secrets, proprietary, or otherwise confidential information, the applicant must provide **two copies** of the submission (e.g., Full Application). The first copy should be marked, "non-confidential" with the information believed to be confidential deleted. The second copy should be marked "confidential" and must clearly and conspicuously identify the business sensitive, trade secrets, proprietary, or otherwise confidential information and must be marked as described below. Failure to comply with these marking requirements may result in the disclosure of the unmarked information under the Freedom of Information Act or otherwise. The government is not liable for the disclosure or use of unmarked information and may use or disclose such information for any purpose as authorized by law.

The cover sheet of the Full Application, and other applicant submission must be marked as follows and identify the specific pages business sensitive, trade secrets, proprietary, or otherwise confidential information:

### **Notice of Restriction on Disclosure and Use of Data:**

Pages [list applicable pages] of this document may contain business sensitive, trade secrets, proprietary, or otherwise confidential

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information that is exempt from public disclosure. Such information shall be used or disclosed only for evaluation purposes or in accordance with a financial assistance agreement between the submitter and the government. The government may use or disclose any information that is not appropriately marked or otherwise restricted, regardless of source. [End of Notice]

In addition, (1) the header and footer of every page that contains business sensitive, trade secrets, proprietary, or otherwise confidential information must be marked as follows: “Contains Business Sensitive, Trade Secrets, Proprietary, or Otherwise Confidential Information Exempt from Public Disclosure,” and (2) every line or paragraph containing such information must be clearly marked with double brackets or highlighting. DOE will make its own determination about the confidential status of the information and treat it according to its determination.

#### **E. Evaluation and Administration by Non-Federal Personnel**

In conducting the merit review evaluation, the Go/No-Go Reviews and Peer Reviews, the government may seek the advice of qualified non-federal personnel as reviewers. The government may also use non-federal personnel to conduct routine, nondiscretionary administrative activities, including DOE contractors. The applicant, by submitting its application, consents to the use of non-federal reviewers/administrators. Non-federal reviewers must sign conflict of interest (COI) and non-disclosure acknowledgements (NDA) prior to reviewing an application. Non-federal personnel conducting administrative activities must sign an NDA.

#### **F. Notice Regarding Eligible/Ineligible Activities**

Eligible activities under this FOA include those which describe and promote the understanding of scientific and technical aspects of specific energy technologies, but not those which encourage or support political activities such as the collection and dissemination of information related to potential, planned or pending legislation.

#### **G. Notice of Right to Conduct a Review of Financial Capability**

DOE reserves the right to conduct an independent third-party review of financial capability for applicants that are selected for negotiation of award (including personal credit information of principal(s) of a small business if there is insufficient information to determine financial capability of the organization).

#### **H. Requirement for Full and Complete Disclosure**

Applicants are required to make a full and complete disclosure of all information requested. Any failure to make a full and complete disclosure of the requested information may result in:

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- The termination of award negotiations;
- The modification, suspension, and/or termination of a funding agreement;
- The initiation of debarment proceedings, debarment, and/or a declaration of ineligibility for receipt of federal contracts, subcontracts, and financial assistance and benefits; and
- Civil and/or criminal penalties.

## **I. Retention of Submissions**

DOE expects to retain copies of all Full Applications and other submissions. No submissions will be returned. By applying to DOE for funding, applicants consent to DOE's retention of their submissions.

## **J. Rights in Technical Data**

Data rights differ based on whether data is first produced under an award or instead was developed at private expense outside the award.

"Limited Rights Data": The United States government will not normally require delivery of confidential or trade secret-type technical data developed solely at private expense prior to issuance of an award, except as necessary to monitor technical progress and evaluate the potential of proposed technologies to reach specific technical and cost metrics.

Government Rights in Technical Data Produced Under Awards: The United States government retains unlimited rights in technical data produced under government financial assistance awards, including the right to distribute to the public. One exception to the foregoing is that invention disclosures may be protected from public disclosure for a reasonable time in order to allow for filing a patent application.

## **K. Copyright**

The prime recipient and subrecipients may assert copyright in copyrightable works, such as software, first produced under the award without DOE approval. When copyright is asserted, the government retains a paid-up nonexclusive, irrevocable worldwide license to reproduce, prepare derivative works, distribute copies to the public, and to perform publicly and display publicly the copyrighted work. This license extends to contractors and others doing work on behalf of the government.

## **L. Export Control**

The United States government regulates the transfer of information, commodities, technology, and software considered to be strategically important to the United States to protect national security, foreign policy, and economic

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interests without imposing undue regulatory burdens on legitimate international trade. There is a network of federal agencies and regulations that govern exports that are collectively referred to as “Export Controls”. All recipients and subrecipients are responsible for ensuring compliance with all applicable United States Export Control laws and regulations relating to any work performed under a resulting award.

The recipient must immediately report to DOE any export control violations related to the project funded under the DOE award, at the recipient or subrecipient level, and provide the corrective action(s) to prevent future violations.

#### **M. Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment**

As set forth in 2 CFR 200.216, recipients and subrecipients are prohibited from obligating or expending project funds (federal funds and recipient cost match) to procure or obtain; extend or renew a contract to procure or obtain; or enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses *covered telecommunications equipment or services* as a substantial or essential component of any system, or as critical technology as part of any system. As described in Section 889 of Public Law 115-232, *covered telecommunications equipment* is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

See Public Law 115-232, Section 889, 2 CFR 200.216, and 2 CFR 200.471 for additional information.

#### **N. Personally Identifiable Information (PII)**

All information provided by the applicant must to the greatest extent possible exclude PII. The term “PII” refers to information which can be used to distinguish or trace an individual's identity, such as their name, social security number, biometric records, alone, or when combined with other personal or identifying information which is linked or linkable to a specific individual, such as date and place of birth, mother's maiden name. (See OMB Memorandum M-07-16 dated May 22, 2007, found at: [M-07-16 \(whitehouse.gov\)](https://www.whitehouse.gov/the-press-office/2007/05/22/m-07-16))

By way of example, applicants must screen resumes to ensure that they do not contain PII such as personal addresses, personal landline/cell phone numbers, and personal emails. **Under no circumstances should Social Security Numbers (SSNs) be included in the application.** Federal agencies are prohibited from the collecting, using, and displaying unnecessary SSNs. (See, the Federal Information



Security Modernization Act of 2014 (Pub. L. No. 113-283, Dec 18, 2014; 44 U.S.C. § 3551).

## **O. Annual Independent Audits**

If a for-profit entity is a prime recipient and has expended \$750,000 or more of DOE awards during the entity's fiscal year, an annual compliance audit performed by an independent auditor is required. For additional information, please refer to 2 CFR 910.501 and Subpart F.

If an educational institution, non-profit organization, or state/local government is a prime recipient or subrecipient and has expended \$750,000 or more of federal awards during the non-federal entity's fiscal year, then a Single or Program-Specific Audit is required. For additional information, please refer to 2 CFR 200.501 and Subpart F.

Applicants and subrecipients (if applicable) should propose sufficient costs in the project budget to cover the costs associated with the audit. DOE will share in the cost of the audit at its applicable cost match ratio.

## **P. Informational Webinar**

DOE will conduct one informational webinar during the FOA process. It will be held after the initial FOA release.

Attendance is not mandatory and will not positively or negatively impact the overall review of any applicant submissions. As the webinar will be open to all applicants who wish to participate, applicants should refrain from asking questions or communicating information that would reveal confidential and/or proprietary information specific to their project. Specific dates for the can be found on the cover page of the FOA.



## APPENDIX A – COST MATCH INFORMATION

### Cost Sharing or Cost Matching

The terms “cost sharing” and “cost matching” are often used synonymously. Even the DOE Financial Assistance Regulations, 2 CFR 200.306, use both of the terms in the titles specific to regulations applicable to cost sharing. DOE almost always uses the term “cost sharing,” as it conveys the concept that non-federal is calculated as a percentage of the Total Project Cost. An exception is the State Energy Program Regulation, 10 CFR 420.12, State Matching Contribution. Here “cost matching” for the non-federal share is calculated as a percentage of the federal funds only, rather than the Total Project Cost.

### How Cost Matching Is Calculated

As stated above, a cost match is calculated as a percentage of the Total Project Cost. FFRDC costs must be included in Total Project Costs. The following is an example of how to calculate a cost match for a project with \$1,000,000 in federal funds with a minimum 30% non-federal match requirement:

- Formula: Federal requested (\$) multiplied by cost match (%) = Non-Federal Share (\$)  
Example: \$1,000,000 multiplied by 30% = \$300,000 Cost Match Requirement

### What Qualifies for Cost Matching

While it is not possible to explain what specifically qualifies for cost matching in one or even a couple of sentences, in general, if a cost is allowable under the cost principles applicable to the organization incurring the cost and is eligible for reimbursement under a DOE grant or cooperative agreement, then it is allowable as cost match. Conversely, if the cost is not allowable under the cost principles and not eligible for reimbursement, then it is not allowable as cost match. In addition, costs may not be counted as cost match if they are paid by the federal government under another award unless authorized by federal statute to be used for cost matching.

The rules associated with what is allowable as cost match are specific to the type of organization that is receiving funds under the grant or cooperative agreement, though are generally the same for all types of entities. The specific rules applicable to:

- FAR Part 31 for For-Profit entities, (48 CFR Part 31); and
- 2 CFR Part 200 Subpart E - Cost Principles for all other non-federal entities.

In addition to the regulations referenced above, other factors may also come into play such as timing of donations and length of the project period. For example, the value of ten years of

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donated maintenance on a project that has a project period of five years would not be fully allowable as cost match. Only the value for the five years of donated maintenance that corresponds to the project period is allowable and may be counted as cost match.

Additionally, DOE generally does not allow pre-award costs for either cost match or reimbursement when these costs precede the signing of the appropriation bill that funds the award. In the case of a competitive award, DOE generally does not allow pre-award costs prior to the signing of the Selection Statement by the DOE Selection Official.

### **General Cost Sharing Rules on a DOE Award**

1. **Cash Cost Match** – encompasses all contributions to the project made by the recipient or subrecipient(s), for costs incurred and paid for during the project. This includes when an organization pays for personnel, supplies, equipment for their own company with organizational resources. If the item or service is reimbursed for, it is cash cost. All cost match items must be necessary to the performance of the project.
2. **In-Kind Cost** – encompasses all contributions to the project made by the recipient or subrecipient(s) that do not involve a payment or reimbursement and represent donated items or services. In-Kind cost match items include volunteer personnel hours, donated existing equipment, donated existing supplies. The cash value and calculations thereof for all In-Kind cost match items must be justified and explained in the Cost Match section of the project Budget Justification. All cost match items must be necessary to the performance of the project. If questions exist, consult your DOE contact before filling out the In-Kind cost match section of the Budget Justification.
3. Funds from other federal sources MAY NOT be counted as cost match. This prohibition includes FFRDC subrecipients. Non-federal sources include any source not originally derived from federal funds. Cost sharing commitment letters from subrecipients must be provided with the original application.
4. Fee or profit, including foregone fee or profit, are not allowable as project costs (including cost ) under any resulting award. The project may only incur those costs that are allowable and allocable to the project (including cost match) as determined in accordance with the applicable cost principles prescribed in FAR Part 31 for For-Profit entities and 2 CFR Part 200 Subpart E - Cost Principles for all other non-federal entities.

### **DOE Financial Assistance Rules 2 CFR Part 200 as amended by 2 CFR Part 910**

As stated above, the rules associated with what is allowable cost are generally the same for all types of organizations. Following are the rules found to be common, but again, the specifics are contained in the regulations and cost principles specific to the type of entity:

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**(A) Acceptable contributions.** All contributions, including cash contributions and third-party in-kind contributions, must be accepted as part of the prime recipient's cost sharing if such contributions meet all of the following criteria:

- (1)** They are verifiable from the recipient's records.
- (2)** They are not included as contributions for any other federally assisted project or program.
- (3)** They are necessary and reasonable for the proper and efficient accomplishment of project or program objectives.
- (4)** They are allowable under the cost principles applicable to the type of entity incurring the cost as follows:
  - a.** For-profit organizations. Allowability of costs incurred by for-profit organizations and those nonprofit organizations listed in Attachment C to OMB Circular A-122 is determined in accordance with the for-profit cost principles in 48 CFR Part 31 in the FAR, except that patent prosecution costs are not allowable unless specifically authorized in the award document. (v) Commercial Organizations. FAR Subpart 31.2—Contracts with Commercial Organizations; and
  - b.** Other types of organizations. For all other non-federal entities, allowability of costs is determined in accordance with 2 CFR Part 200 Subpart E.
- (5)** They are not paid by the federal government under another award unless authorized by federal statute to be used for cost sharing or matching.
- (6)** They are provided for in the approved budget.

**(B) Valuing and documenting contributions**

- (1)** Valuing recipient's property or services of recipient's employees. Values are established in accordance with the applicable cost principles, which mean that amounts chargeable to the project are determined on the basis of costs incurred. For real property or equipment used on the project, the cost principles authorize depreciation or use charges. The full value of the item may be applied when the item will be consumed in the performance of the award or fully depreciated by the end of the award. In cases where the full value of a donated capital asset is to be applied as cost sharing or matching, that full value must be the lesser or the following:
  - a.** The certified value of the remaining life of the property recorded in the recipient's accounting records at the time of donation; or
  - b.** The current fair market value. If there is sufficient justification, the Contracting Officer may approve the use of the current fair market value of the donated

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property, even if it exceeds the certified value at the time of donation to the project. The Contracting Officer may accept the use of any reasonable basis for determining the fair market value of the property.

- (2)** Valuing services of others' employees. If an employer other than the recipient furnishes the services of an employee, those services are valued at the employee's regular rate of pay, provided these services are for the same skill level for which the employee is normally paid.
- (3)** Valuing volunteer services. Volunteer services furnished by professional and technical personnel, consultants, and other skilled and unskilled labor may be counted as cost sharing or matching if the service is an integral and necessary part of an approved project or program. Rates for volunteer services must be consistent with those paid for similar work in the recipient's organization. In those markets in which the required skills are not found in the recipient organization, rates must be consistent with those paid for similar work in the labor market in which the recipient competes for the kind of services involved. In either case, paid fringe benefits that are reasonable, allowable, and allocable may be included in the valuation.
- (4)** Valuing property donated by third parties.

  - a.** Donated supplies may include such items as office supplies or laboratory supplies. Value assessed to donated supplies included in the cost sharing or matching must be reasonable and must not exceed the fair market value of the property at the time of the donation.
  - b.** Normally only depreciation or use charges for equipment and buildings may be applied. However, the fair rental charges for land and the full value of equipment or other capital assets may be allowed, when they will be consumed in the performance of the award or fully depreciated by the end of the award, provided that the Contracting Officer has approved the charges. When use charges are applied, values must be determined in accordance with the usual accounting policies of the recipient, with the following qualifications:

    - i.** The value of donated space must not exceed the fair rental value of comparable space as established by an independent appraisal of comparable space and facilities in a privately-owned building in the same locality.
    - ii.** The value of loaned equipment must not exceed its fair rental value.
- (5)** Documentation. The following requirements pertain to the recipient's supporting records for in-kind contributions from third parties:





- a. Volunteer services must be documented and, to the extent feasible, supported by the same methods used by the recipient for its own employees.
- b. The basis for determining the valuation for personal services and property must be documented.



## **APPENDIX B – WAIVER REQUESTS FOR: 1. FOREIGN ENTITY SUBRECIPIENT PARTICIPATION; AND 2. FOREIGN WORK**

### **1. Waiver for Foreign Entity Subrecipient Participation**

Many of the technology areas DOE funds fall in the category of critical and emerging technologies (CETs). CETs are a subset of advanced technologies that are potentially significant to United States national and economy security.<sup>40</sup> For projects selected under this FOA, all recipients and subrecipients must be organized, chartered or incorporated (or otherwise formed) under the laws of a state or territory of the United States; have majority domestic ownership and control; and have a physical location for business operations in the United States. To request a waiver of this requirement, an applicant must submit an explicit waiver request in the Full Application.

#### **Waiver Criteria**

Foreign entities seeking to participate in a project funded under this FOA must demonstrate to the satisfaction of DOE that:

- a. Its participation is in the best interest of the United States industry and United States economic development;
- b. The project team has appropriate measures in place to control sensitive information and protect against unauthorized transfer of scientific and technical information;
- c. Adequate protocols exist between the United States subsidiary and its foreign parent organization to comply with export control laws and any obligations to protect proprietary information from the foreign parent organization;
- d. The work is conducted within the United States and the entity acknowledges and demonstrates that it has the intent and ability to comply with the U.S. Competitiveness Provision (see Section VI.B.xviii.); and
- e. The foreign entity will satisfy other conditions that may be deemed necessary by DOE to protect United States government interests.

#### **Content for Waiver Request**

A Foreign Entity waiver request must include the following:

- a. Information about the entity: name, point of contact, and proposed type of involvement in the project;
- b. Country of incorporation, the extent of the ownership/level control by foreign entities, whether the entity is state owned or controlled, a summary of the ownership breakdown of the foreign entity and the percentage of ownership/control by foreign entities, foreign holders, foreign state or foreign individuals;

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<sup>40</sup> See [Critical and Emerging Technologies List Update \(whitehouse.gov\)](https://www.whitehouse.gov/critical-emerging-technologies/).

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- c. The rationale for proposing a foreign entity participate (must address criteria above);
- d. A description of the project's anticipated contributions to the United States economy;
  - How the project will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States
  - How the project will promote domestic American manufacturing of products and/or services
- e. A description of how the foreign entity's participation is essential to the project;
- f. A description of the likelihood of Intellectual Property (IP) being created from the work and the treatment of any such IP; and
- g. Countries where the work will be performed (Note: if any work is proposed to be conducted outside the United States, the applicant must also complete a separate request foreign work waiver).

DOE may also require:

- A risk assessment with respect to IP and data protection protocols that includes the export control risk based on the data protection protocols, the technology being developed and the foreign entity and country. These submissions could be prepared by the project lead (if not the prime recipient), but the prime recipient must make a representation to DOE as to whether it believes the data protection protocols are adequate and make a representation of the risk assessment – high, medium or low risk of data leakage to a foreign entity.
- Additional language be added to any agreement or subagreement to protect IP, mitigate risk or other related purposes.

DOE may require additional information before considering the waiver request.

The applicant does not have the right to appeal DOE's decision concerning a waiver request.

## **2. Waiver for Performance of Work in the United States (Foreign Work Waiver)**

As set forth in Section IV.I.iii., all work under funding under this FOA must be performed in the United States. To seek a waiver of the Performance of Work in the United States requirement, the applicant must submit an explicit waiver request in the Full Application. A separate waiver request must be submitted for each entity proposing performance of work outside of the United States.

Overall, a waiver request must demonstrate to the satisfaction of DOE that it would further the purposes of this FOA and is otherwise in the economic interests of the

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United States to perform work outside of the United States. A request for a foreign work waiver must include the following:

1. The rationale for performing the work outside the United States (“foreign work”);
2. A description of the work proposed to be performed outside the United States;
3. An explanation as to how the foreign work is essential to the project;
4. A description of the anticipated benefits to be realized by the proposed foreign work and the anticipated contributions to the United States economy;
5. The associated benefits to be realized and the contribution to the project from the foreign work;
6. How the foreign work will benefit the United States, including manufacturing, contributions to employment in the United States and growth in new markets and jobs in the United States;
7. How the foreign work will promote manufacturing of products and/or services in the United States;
8. A description of the likelihood of Intellectual Property (IP) being created from the foreign work and the treatment of any such IP;
9. The total estimated cost (DOE and recipient cost match) of the proposed foreign work;
10. The countries in which the foreign work is proposed to be performed; and
11. The name of the entity that would perform the foreign work. Information about the entity(ies) involved in the work proposed to be conducted outside the United States. (i.e., entity seek a waiver and the entity(ies) that will conduct the work).

DOE may require additional information before considering the waiver request.

DOE’s decision concerning a waiver request is not appealable.



## APPENDIX C – REQUIRED USE OF AMERICAN IRON, STEEL, MANUFACTURED PRODUCTS, AND CONSTRUCTION MATERIALS BUY AMERICA REQUIREMENT FOR INFRASTRUCTURE PROJECTS

### A. Definitions

For purposes of the Buy America Requirement, based both on the statute and OMB Guidance Document dated April 18, 2022, the following definitions apply:

**Construction materials** includes an article, material, or supply—other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives—that is or consists primarily of:

- non-ferrous metals;
- plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables);
- glass (including optic glass);
- lumber; or
- drywall.

**Infrastructure** includes, at a minimum, the structures, facilities, and equipment for, in the United States, Roads, highways, and bridges; public transportation; Dams, ports, harbors, and other maritime facilities; Intercity passenger and freight railroads; Freight and intermodal facilities; airports; Water systems, including drinking water and wastewater systems; Electrical transmission facilities and systems; utilities; broadband infrastructure; and buildings and real property. Infrastructure includes facilities that generate, transport, and distribute energy.

Moreover, according to the OMB guidance document:

When determining if a program has infrastructure expenditures, Federal agencies should interpret the term “infrastructure” broadly and consider the definition provided above as illustrative and not exhaustive. When determining if a particular construction project of a type not listed in the definition above constitutes “infrastructure,” agencies should consider whether the project will serve a public function, including whether the project is publicly owned and operated, privately operated on behalf of the public, or is a place of public accommodation, as opposed to a project that is privately owned and not open to the public. Projects with the former qualities have greater indicia of infrastructure, while projects with the latter quality have fewer. Projects consisting solely of the purchase, construction, or improvement of a private home for personal use, for example, would not constitute an infrastructure project.

The Agency, not the applicant, will have the final say as to whether a given project includes infrastructure, as defined herein. Accordingly, in cases where the “public” nature of the infrastructure is unclear, but the other relevant criteria are met, DOE strongly recommends that

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applicants complete their full application with the assumption that Buy America requirements will apply to the proposed project.

**Project** means the construction, alteration, maintenance, or repair of infrastructure in the United States.

**B. Buy America Requirement for Infrastructure Projects (Buy America Requirements)**

In accordance with section 70914 of the BIL, none of the project funds (includes federal and Recipient cost match) may be used for a project for infrastructure unless:

- (1) all iron and steel used in the project are produced in the United States--This means all manufacturing processes, from the initial melting stage through the application of coatings, occurred in the United States;
- (2) all manufactured products used in the project are produced in the United States—this means the manufactured product was manufactured in the United States; and the cost of the components of the manufactured product that are mined, produced, or manufactured in the United States is greater than 55 percent of the total cost of all components of the manufactured product, unless another standard for determining the minimum amount of domestic content of the manufactured product has been established under applicable law or regulation; and
- (3) all construction materials are produced in the United States—this means that all manufacturing processes for the construction material occurred in the United States.

The Buy America Requirement only apply to articles, materials, and supplies that are consumed in, incorporated into, or affixed to an infrastructure project. As such, it does not apply to tools, equipment, and supplies, such as temporary scaffolding, brought to the construction site and removed at or before the completion of the infrastructure project. Nor does the Buy America Requirement apply to equipment and furnishings, such as movable chairs, desks, and portable computer equipment, that are used at or within the finished infrastructure project but are not an integral part of the structure or permanently affixed to the infrastructure project.

These requirements must flow down to all sub-awards, all contracts, subcontracts and purchase orders for work performed under the proposed project, except where the prime recipient is a for-profit entity. Based on guidance from the Office of Management and Budget (OMB), the Buy America requirements of the BIL do not apply to DOE projects in which the prime recipient is a for-profit entity; the requirements only apply to projects whose prime recipient is a State, local government, Indian tribe, Institute of Higher Education, or nonprofit organization.

For additional information related to the application and implementation of these Buy America requirements, please see OMB Memorandum M-22-11, issued April 18, 2022: <https://www.whitehouse.gov/wp-content/uploads/2022/04/M-22-11.pdf>.



Note that for all applicants – both non-Federal entities and for-profit entities – DOE is including a Program Policy Factor that the Selection Official may consider in determining which Full Applications to select for award negotiations that considers whether the applicant has made a commitment to procure U.S. iron, steel, manufactured products, and construction materials in its project.

### **C. Waivers**

The DOE financial assistance agreement will require each recipient: (1) to fulfill the commitments made in its application regarding the procurement of U.S.-produced products and (2) to fulfill the commitments made in its application regarding the procurement of other key component metals and manufactured products domestically that are deemed available in sufficient and reasonable available quantities or of a satisfactory quality at the time of award negotiation.

In limited circumstances, DOE may waive the application of the Buy America Requirement where DOE determines that:

- (1) applying the Buy America requirements would be inconsistent with the public interest;
- (2) the types of iron, steel, manufactured products, or construction materials are not produced in the United States in sufficient and reasonably available quantities or of a satisfactory quality; or
- (3) the inclusion of iron, steel, manufactured products, or construction materials produced in the United States will increase the cost of the overall project by more than 25 percent.

If an applicant or recipient is seeking a waiver of the Buy America requirements, it may submit a waiver request after it has been notified of its selection for award negotiations. A waiver request must include:

- A detailed justification for the use of “non-domestic” iron, steel, manufactured products, or construction materials to include an explanation as to how the non-domestic item(s) is essential to the project;
- A certification that the applicant or recipient made a good faith effort to solicit bids for domestic products supported by terms included in requests for proposals, contracts, and nonproprietary communications with potential suppliers;
- Applicant /Recipient name and Unique Entity Identifier (UEI);
- Total estimated project cost, DOE and cost- amounts;
- Project description and location (to the extent known);
- List and description of iron or steel item(s), manufactured goods, and construction material(s) the applicant or recipient seeks to waive from Domestic Content Procurement Preference requirement, including name, cost, country(ies) of origin (if known), and relevant Product Service Codes (PSC) and North American Industry Classification System (NAICS) code for each;

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- Waiver justification including due diligence performed (e.g., market research, industry outreach) by the applicant or recipient;
- Anticipated impact if no waiver is issued.

DOE may require additional information before considering the waiver request.

Waiver requests are subject to public comment periods of no less than 15 days and must be reviewed by the Made in America Office. There may be instances where an award qualifies, in whole or in part, for an existing waiver.

DOE's decision concerning a waiver request is not appealable.



## **APPENDIX D – EXAMPLES OF AVAILABLE RESOURCES THAT SUPPORT ADOPTION OF SMART MANUFACTURING TECHNOLOGIES OR HIGH-PERFORMANCE COMPUTING RESOURCES ACROSS THE UNITED STATES**

In support of the Programs goal of advancing a robust and integrated support ecosystem for SMMs, DOE encourages applicants to partner with existing local, state, and national resources. This coordination will foster a more robust and whole-of-government approach to the deployment of smart manufacturing technologies and help ensure that firms from across the country have access to resources where they are—making it less costly and less time consuming on SMMs. It also ensures that the funding received through this Program does not have a one-time and short-term impact, but rather sets the foundation for enduring partnerships and the continuation of these relationships between States, SMMs, and resources.

The following are examples of the types of available resources that applicants could consider supporting the adoption of smart manufacturing technologies or high-performance computing resources through their projects.

### **Manufacturing USA<sup>41</sup>**

Manufacturing USA is national network to secure U.S. global leadership in advanced manufacturing through public-private collaboration in areas including manufacturing technology, supply chain, and workforce development. Nine federal agencies work to foster a whole-of-government approach through Manufacturing USA to bolster U.S. industrial competitiveness, economic growth and national security. The Manufacturing USA network is made up of 16 Manufacturing Innovation Institutes across the country, each with a distinct technology focus. Each institute is a public-private partnership connecting industry, academia, and government partners. There are currently more than 2300 member organizations in Manufacturing USA.

Manufacturing USA allows manufacturing firms to collaborate to solve process and technical challenges, test innovative ideas, access workforce training, learn from one another, and advance the American manufacturing sector.

Institutes can engage with States and SMMs on a range of projects such as:

- Workforce development programs, including training programs in specific technologies and curriculum development assistance;
- Access to shared test facilities and equipment for SMMs to de-risk technologies before deployment;
- R&D assistance on manufacturing process, system and technology development and improvements;

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<sup>41</sup> <https://www.manufacturingusa.com>.

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- Verifying the cybersecurity of technologies and training the manufacturing workforce on cybersecurity risks; and
- Connecting manufacturing firms with potential financial partners through its network of stakeholders.

Further information regarding the Manufacturing USA Institutes can be found here: [Institutes | Manufacturing USA](#).

### **DOE National Laboratories**

The 17 National Labs serve as leading institutions of scientific innovation—addressing large-scale, complex R&D challenges with an approach focusing on translating basic science to innovation.<sup>42</sup> Labs are conducting a variety of research activities in smart manufacturing for deployment among manufacturers. Among just some of the areas where National Labs could be valuable smart manufacturing partners include:

- Innovation in Sensor development to improve data collection of manufacturing lines;
- Robotics development for expanding smart and digital manufacturing applications;
- Engagement between industry and National Lab scientific experts for manufacturing demonstration assessments; and Access to some of the world's most powerful HPC systems.<sup>43</sup>

### **NIST Manufacturing Extension Partnership<sup>44</sup> (MEP)**

The National Institute of Standards and Technology's (NIST's) Hollings Manufacturing Extension Partnership (MEP) Program is a nationwide network of Centers. MEP Centers are located in all 50 States and Puerto Rico and serve as trusted business advisors focused on transforming U.S. manufacturers' ability to compete globally, supporting supply chain integration, providing access to technology for improved productivity, and supporting a strong manufacturing workforce.

The MEP National Network™ is a diverse network of state, non-profit organizations, and public colleges and universities, comprising more than 1,400 manufacturing experts offering hands-on technical expertise and assistance services that address the critical needs of their local manufacturers that will impact U.S. Manufacturing. MEP Centers work directly with area manufacturers in each state to provide expertise and services tailored

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<sup>42</sup> <https://www.energy.gov/national-laboratories>.

<sup>43</sup> U.S. Department of Energy Office of Energy Efficiency & Renewable Energy, *High Performance Computing for Manufacturing* (May 2021).

<sup>44</sup> <https://www.nist.gov/mep/about-nist-mep>.

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to manufacturers' most critical needs, ranging from process improvement and workforce development to business practices and technology transfer and implementation. Additionally, MEP Centers connect manufacturers with government and trade associations, universities and research laboratories, and a host of other public and private resources to help manufacturers realize individual business goals.

- The MEP National Network offers nation-wide resource, covering State, regional, or locally based SMMs and providing services in assessing how and where to implement smart manufacturing technologies;
- Inform investment decisions through innovative facility modeling focused on the incorporation of new products and processes;
- Planning technology adoption in accordance with ongoing operations and maintenance needs;
- Increasing supply chain resiliency through enhanced interconnections among OEMs and SMMs; and
- Identify workforce needs and resources related to the development and implementation of smart manufacturing technologies.

Further information regarding NIST MEP centers can be found here: [MEP National Network | NIST](#).

### **DOE Industrial Assessment Centers (IACs)**

DOE-funded IACs are currently located at 37 institutions of higher education (IHE) across the nation. IACs bolster U.S. manufacturing competitiveness by providing small- and medium-sized manufacturers with no-cost assessments and recommendations to improve energy efficiency, productivity, sustainability, and competitiveness—typically resulting in cost-savings for the SMM. In addition, the network of IACs can enhance cybersecurity awareness, promote resiliency planning, help achieve decarbonization objectives, and provide some level of tech transfer/training to manufacturers located in disadvantaged communities. IACs also work to build up the workforce of engineering professionals, specifically those who can conduct assessments of manufacturing and industrial facilities. The IAC Program is currently expanding to community colleges, trade schools, and union training programs, which can also serve as regionally and locally relevant resources to scale adoption of and workforce training related to smart manufacturing technologies.

### **Institutes of Higher Education (IHEs)**

Institutions of Higher Education, including both four-year and two-year colleges and universities, can be an important resource for SMMs adopting Industry 4.0 technologies. IHEs are poised at the nexus of research, development, workforce training, and

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deployment, and can strategically combine these roles in the support of manufacturing firms. They can, for example, be places where technologies are tested and improved. Partnerships between manufacturing firms and research faculty can be impactful, cost-saving, and timesaving. IHEs may have HPC equipment that manufacturing firms can access and later partner with the IHE for creating implementation plans.

Manufacturing processes can also be tested and refined in industry settings by university faculty—a process in and of itself that has an educational component for students working alongside these faculty. Similarly, IHEs can work in partnership with industry and labor unions to train workforce, including in areas like data mining, supply chain optimization, and cybersecurity, which can critically enhance capability to implement smart manufacturing technologies within SMMs at scale.